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TRANSACTIONS

OF THE

OBSTETRICAL SOCIETY

OF

LONDON.

VOL. XXXI.

FOR THE YEAR 1889.

WITH A LIST OF OFFICERS, FELLOWS, ETC.

EDITED BY

PERCY BOULTON, M.D., SENIOR SECRETARY

AND

F. H. CHAMPNEYS, M.D.

LONDON:

LONGMANS, GREEN, AND CO.

1890.

PRINTED BY ADLARD AND SON, BARTHOLOMEW CLOSE.

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Lawrence, A. E. Aust, M.D.	Clifton.
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Harvey, Robert, M.D.	Calcutta.
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Perrigo, James, M.D.	Montreal, Canada.
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BRITISH SUBJECTS.

Elected

1862 DUNCAN, JAMES MATTHEWS, M.D., A.M., LL.D., F.R.S. Physician-Accoucheur to, and Lecturer on Midwifery and Diseases of Women and Children at, St. Bartholomew's Hospital ; 71, Brook street, Grosvenor square, W. *Council*, 1878-80, 1886-8. *Pres.* 1881-82. *Trans.* 24.

1871 KEILLER, ALEXANDER, M.D., F.R.S. Ed., Physician to the Royal Maternity Hospital, Lecturer on Midwifery and Diseases of Women and Children at Surgeons' Hall, Edinburgh ; 21, Queen street, Edinburgh.

1871 KIDD, GEORGE H., M.D., F.R.C.S.I., Obstetrical Surgeon to the Coombe Lying-in Hospital; 30, Merrion square south, Dublin.

1870 WEST, CHARLES, M.D., F.R.C.P., Corresponding Member of the Academy of Medicine of Paris ; 55, Harley street, W. *Pres.* 1877-8.

FOREIGN SUBJECTS.

1872 Barker, Fordyce, M.D., Professor of Clinical Midwifery and Diseases of Women at the Bellevue Hospital Medical College, and Obstetric Physician to the Bellevue Hospital; 85, Madison avenue, New York.

1863 Braun von Fernwald, Carl, M.D., Professor of Midwifery, Vienna.

1863 Faye, F. C., M.D., Professor of Midwifery in the University of Christiania.

1866 Hugenberger, Theodor, M.D., à la Maternité et aux Enfants Trouvés Hôpital des Accouchements, Moscow.

1866 Lazarewitch, J., M.D., Professor Emeritus and Physician to the Maximilian Hospital; Spaskaja, 2, St. Petersburg. *Trans.* 3.

1864 Pajot, Ch. M.D., late Professor of Midwifery to the Faculty of Medicine, Paris.

1862 Scanzoni, F. W. von, M.D., Würzburg.

1877 Stoltz, Professor, M.D. Nancy.

1872 Thomas, T. Gaillard, M.D., Professor of Obstetrics in the College of Physicians and Surgeons; 296, Fifth avenue, New York.

1862 Virchow, Rudolf, M.D., Professor of Pathological Anatomy in the University of Berlin.

CORRESPONDING FELLOWS.

Elected

1873 Martin, A. E., M.D., Berlin. *Trans.* 1.

1876 Budin, P., M.D., 129, Boulevard St. Germain, Paris. *Trans.* 1.

1876 Chadwick, James R., M.A., M.D., Physician for Diseases of Women, Boston City Hospital; Clarendon street, Boston, Massachusetts, U.S.

1877 Goodell, William, A.M., M.D., Professor of Gynæcology in the University of Pennsylvania; 1418, Spruce street, Philadelphia, Pennsylvania.

1876 Lusk, William Thompson, M.D., Professor of Obstetrics, Bellevue Hospital Medical College; New York.

1877 Storer, Horatio R., M.D., Newport, Rhode Island, U.S.A.

ORDINARY FELLOWS.

1890.

Those marked thus (*) have paid the Composition Fee in lieu of further annual subscriptions.

The letters O.F. are prefixed to the names of the "Original Fellows" of the Society.

Elected

1887 Achard, Alexander Louis, M.D., 10, Blandford street, Portman square, W.

1884 Adams, Thomas Rutherford, M.D., Stamford House, 78, St. James's road, Croydon.

1887 Alexander, Sidney R., M.D. Lond., Essex Lodge, Upper Norwood, S.E., and Nice, France.

1878 Alford, Frederick Stephen, 61, Haverstock hill, N.W.

1883 Allan, Robert John, L.R.C.P. Ed., Victoria street, Ashfield, Sydney, New South Wales. [Per Alexander Allan, Esq., Glen House, The Valley, Scarborough.]

1873 Allen, Henry Marcus, F.R.C.P. Ed., 20, Regency square, Brighton.

1887 Ambrose, Robert, B.A., L.R.C.P. & S. Ed., 1, Mount place, Whitechapel road, E.

1878 Anderson, Izett William, M.D., 95, Duke street, Kingston, Jamaica. *Trans.* 1. *Hon. Loc. Sec.*

1875 Anderson, John Ford, M.D., C.M., 1, Buckland crescent, Belsize park, N.W. *Council*, 1882.

1866 Andrews, Henry Charles, M.D., 11, Addison terrace, Notting hill, W. *Council*, 1882-3.

Elected

1859 Andrews, James, M.D., Everleigh, Green hill, Hampstead, N.W. *Council*, 1881.

1888 Annacker, Ernest, M.D. Berlin, St. Mary's Hospital, Manchester.

1884 Appleford, Stephen Herbert, L.R.C.P. Lond., 17, Finsbury circus, E.C.

1870 Appleton, Robert Carlisle, The Bar House, Beverley.

1884 Appleton, Thomas A., 46, Britannia road, Fulham, S.W.

1883 Archibald, John, M.D., Woodhouse Eaves, Loughborough.

1871 Argles, Frank, L.R.C.P. Ed., Hermon Lodge, Wanstead, Essex, N.E. *Council*, 1886-7.

1888 Armstrong, James, M.B. Edin., 84, Rodney street, Liverpool.

1861 Armstrong, John, M.D., Green street green, Dartford, Kent.

1886 Ashe, William Percy, L.R.C.P. Lond., Ivy Bank, Chislehurst.

O.F. Aveling, James H., M.D., Senior Physician to the Chelsea Hospital for Women; 1, Upper Wimpole street, W. *Council*, 1865-66, 1872, 1884. *Hon. Sec.* 1873. *Hon. Lib.* 1874-6. *Vice-Pres.* 1877-8. *Board Exam. Midwives*, 1872, 1875-83 (*Chairman*, 1878-83). *Trans.* 9.

1872 Ayling, Arthur H. W., 94a, Great Portland street, W.

1887 Bailey, Henry Frederick, The Hollies, Lee terrace, Lee, S.E.

1873 Bailey, James Johnson, M.D., F.R.C.S. Ed., Woodville Cottage, Marple, Cheshire.

1887 Baker, Oswald, L.R.C.P. & S. Ed., Surgeon-Major, Indian Army, Simla, India.

1880 Balls-Headley, Walter, M.D., F.R.C.P., 5, Collins street, Melbourne, Victoria.

1869 Bantock, George Granville, M.D., Surgeon to the Samaritan Free Hospital; 12, Granville place, Portman square, W. *Council*, 1874-6. *Trans.* 2.

Elected

1886* Barbour, A. H. Freeland, M.D. Edin., 24, Melville street, Edinburgh.

O.F. Barnes, Robert, M.D., F.R.C.P., Consulting Obstetric Physician to St. George's Hospital; 15, Harley street, Cavendish square, W. *Vice-Pres.* 1859-60. *Council*, 1861-62, 1867. *Treas.* 1863-64. *Pres.* 1865-66. *Trans.* 32. *Trustee.*

1875 Barnes, R. S. Fancourt, M.D., Physician to the Chelsea Hospital for Women; 7, Queen Anne street, Cavendish square, W. *Council*, 1879-81. *Board Exam. Midwives*, 1880-2. *Trans.* 2.

1877 Barnes, Thomas Henry, M.D., 54, London road, Croydon.

1884 Barraclough, Robert W. S., M.D., 34, Dulwich road, Herne hill, S.W.

1887 Barton, Henry Thomas, 63, Harford street, E.

1887 Barton, William Edwin, L.R.C.P. Lond., Staunton-on-Wye, near Hereford.

1861* Bartrum, John S., F.R.C.S., Surgeon to the Bath General Hospital; 13, Gay street, Bath. *Council*, 1877-9.

1866 Bassett, John, M.D., Professor of Midwifery at the Queen's College, Birmingham; 144, Hockley hill, Birmingham. *Council*, 1874-6. *Vice-Pres.* 1880-2. *Trans.* 3.

1885 Bastable, Daniel Herbert, L.K.Q.C.P.I.

1873 Bate, George Paddock, M.D., 412, Bethnal Green road, N.E.; and 2, Northumberland Houses, King Edward road, Hackney. *Council*, 1882-4.

1886 Bates, Tom, L.R.C.P. Ed., 44, Foregate street, Worcester.

1867 Batten, Rayner W., M.D., F.R.C.P., Physician to the Gloucester General Infirmary; 1, Brunswick square, Gloucester. *Council*, 1886-7. *Hon. Loc. Sec.*

1887 Baumgartner, Henry Spelman, M.B. Durh., 1, Pleasant row, Newcastle-on-Tyne.

1871 Beach, Fletcher, M.B., Darenth Asylum, Dartford, Kent.

Elected

1871 Beadles, Arthur, Park House, Dartmouth Park, Forest hill, S.E.

1885 Beatty, William John, L.R.C.P. Ed., Stockton-on-Tees.

1866 Belcher, Henry, M.D., 28, Cromwell road, West Brighton.

1871 Bell, Robert, M.D. Glasg., 29, Lynedoch street, Glasgow.

1880 Benington, Robert Crewdson, 5, Victoria square, Newcastle-on-Tyne.

1873* Bennet, James Henry, M.D., Mentone. *Council*, 1881-3. *Trans.* 1.

1889 Benson, Matthew, M.D. Brux., 35, Dicconson street, Wigan.

1883 Bertolacci, J. Hewetson, care of Dr. March, Woodlawn, Spencer park, New Wandsworth, S.W.

1889 Best, William James, 1, Cambridge terrace, Dover.

1887 Beswick, Robert, 161, Bishopsgate street Without, E.C.

1887 Biden, Charles Walter, L.R.C.P.Lond., 11, St. Mary's road, Peckham, S.E.

1879 Biggs, J. M., Hillside, Child's hill, N.W.

1889 Bisshopp, Francis Robert Bryant, M.A., M.B., B.C. Cantab., Belvedere, Mount Pleasant, Tunbridge Wells.

1868 Black, James Watt, M.A., M.D., Obstetric Physician to the Charing Cross Hospital; 15, Clarges street, Piccadilly, W. *Council*, 1872-4. *Vice-Pres.* 1885-6. *Chairman, Board Exam. Midwives*, 1887-90.

1861* Blake, Thomas William, Hurstbourne, Bournemouth, Hants.

1872 Bland, George, Surgeon to the Macclesfield Infirmary; Park Green, Macclesfield.

1887 Bluett, George Mallack, L.R.C.P. Lond., 3, Priory road, Bedford park, Chiswick.

1883 Bonney, William Augustus, M.D., 145, Beaufort street, Chelsea, S.W.

Elected

1866* Boulton, Percy, M.D., Physician to the Samaritan Free Hospital, 6, Seymour street, Portman square, W. *Council*, 1878-80, 1885. *Hon. Lib.* 1886. *Hon. Sec.* 1886-9. *Vice-Pres.* 1890. *Board Exam. Midwives*, 1890. *Trans.* 3.

1886 Boustead, Robinson, M.D., Surgeon-Major, Indian Army, c/o Messrs. H. S. King and Co., 45, Pall Mall, S.W.

1877 Bowkett, Thomas Edward, 145, East India road, Poplar, E. *Council*, 1890.

1884* Boxall, Robert, M.D., Assistant Obstetric Physician to, and Lecturer on Practical Midwifery at, the Middlesex Hospital; 6, Chandos street, Cavendish square, W. *Council*, 1888-90. *Trans.* 9.

1884 Boys, Arthur Henry, L.R.C.P. Ed., Chequer Lawn, St. Albans.

1886 Braubury, Harvey K., 9, Schubert road, Putney, S.W.

1877 Bradley, Michael McWilliams, M.B., Jarrow-on-Tyne.

1873 Braithwaite, James, M.D., Obstetric Physician to the Leeds General Infirmary; Lecturer on Diseases of Women and Children at the Leeds School of Medicine; 16, Clarendon road, Little Woodhouse, Leeds. *Vice-Pres.* 1877-9. *Trans.* 4. *Hon. Loc. Sec.*

1880 Branfoot, Arthur Mudge, M.B., Superintendent of the Government Lying-in Hospital, Madras, and Professor of Midwifery and Diseases of Women and Children in the Madras Medical College, Pantheon road, Madras. *Hon. Loc. Sec.*

1875 Brewer, Alexander Hampton, 201, Queen's road, Dalston, E. *Trans.* 1.

1887 Bridger, Adolphus Edward, M.D. Ed., 16, Orchard street, Portman square, W.

1872 Bridgwater, Thomas, M.B., Harrow-on-the-hill, N.W. *Council*, 1884.

1888* Briggs, Henry, M.B., F.R.C.S., 17, Rodney st., Liverpool.

1864 Bright, John Meaburn, M.D., Alvaston, Park hill, Forest hill, S.E. *Council*, 1873-74.

1869 Brisbane, James, M.D., 21, Park road, Regent's park, N.W.

Elected

1885 Briscoe, John Frederick, The Lammas, Esher, Surrey.

1887 Brodie, Frederick Carden, L.R.C.P. Lond., 4, Greenfield place, Westgate street, Newcastle-on-Tyne.

1866 Brodie, George B., M.D., Consulting Physician-Accoucheur to Queen Charlotte's Lying-in Hospital; 3, Chesterfield street, Mayfair, W. *Council*, 1873-75. *Vice-Pres.*, 1889.

1889 Brook, William Henry B., M.B. Lond., F.R.C.S., County Hospital, Lincoln.

1876 Brookhouse, Charles Turing, M.D., 43, Manor road, Brockley, S.E.

1889 Brown, Alfred, M.A., M.B., C.M. Aber., Claremont, Higher Broughton, Manchester.

1868 Brown, Andrew, M.D. St. And., 1, Bartholomew road, Kentish town, N.W. *Trans.* 1.

1865 Brown, D. Dyce, M.D., 29, Seymour street, Portman square, W.

1889* Brown, William Carnegie, M.D. Aber., Penang, China.

1876 Brunjes, Martin, 33a, Gloucester place, Portman square, W.

1865 Brunton, John, M.D., M.A., Surgeon to the Royal Maternity Charity; 21, Euston road, N.W. *Council*, 1871-3. *Vice-Pres.* 1882-4. *Board Exam. Midwives*, 1877-82. *Trans.* 6.

1883 Buksh, Raheem, Liverpool House, Balaam street, Plaistow, E.

1882* Buller, Audley Cecil, M.D., Oxford and Cambridge Club, Pall Mall, S.W.

1885* Bunny, J. Brice, L.R.C.P. Ed., Newbury.

1877 Burchell, Peter Lodwick, M.B., 2, Kingsland road, E., and Crofton Lodge, Theydon park, Theydon Bois, Essex. *Council*, 1882-4. *Vice.-Pres.* 1885-7. *Board Exam. Midwives*, 1884-7. *Trans.* 1.

1877 Burd, Edward, M.D., M.C., Senior Physician to the Salop Infirmary; Newport House, Shrewsbury. *Council*, 1886-7. *Hon. Loc. Sec.*

Elected

1888 Burton, Herbert Campbell, L.R.C.P. Lond., Lee Park Lodge, Blackheath, S.E.

1878 Butler-Smythe, Albert Charles, M.R.C.P.Ed., 35, Brook street, Grosvenor square, W. *Council*, 1889-90.

1868 Butt, William Frederick, L.R.C.P. Lond., 48, Park street, Grosvenor square, W. *Council*, 1876-78.

1887* Buxton, Dudley W., M.D. Lond., 82, Mortimer street, Cavendish square, W.

1886 Byers, John W., M.D., Physician for Diseases of Women to the Royal Hospital, Belfast; Lower crescent, Belfast.

1883 Caldwell, William T. D., M.D., 209, Brixton road, S.W.

1887 Cameron, James Chalmers, M.D., Professor of Midwifery and Diseases of Infancy, McGill University; 941, Dorchester street, Montreal.

1887 Cameron, Murdoch, M.D. Glas., 7, Newton terrace, Charing Cross, Glasgow.

1888* Campbell, William Macfie, M.D. Edin., 1, Princes gate East, Liverpool.

1861 Candlish, Henry, M.D., Physician to the Alnwick Infirmary; 26, Fenkle street, Alnwick, Northumberland.

1863 Carlyle, David, M.D., 2, The Crescent, Carlisle. *Trans.* 1. *Hon. Loc. Sec.*

1886 Carpenter, Arthur Bristowe, M.A., M.B. Oxon., Wykeham House, Bedford park, Croydon.

1872 Carter, Charles Henry, M.D., Physician to the Hospital for Women, Soho square; 45, Great Cumberland place, Hyde park, W. *Council*, 1880-2. *Trans.* 4.

1890 Carter, Robert James, M.B. Lond., Lock Hospital, Dean street, Soho, W.C.

1877 Carver, Eustace John, 3, Fulham park villas, Fulham, S.W.

1887 Case, William, 34, Westbourne road, Arundel square, N.

1869 Caskie, John Boyd, M.D., 19, Tyndale place, Islington, N.

Elected

1863 Cayzer, Thomas, Mayfield, Aigburth, Liverpool.

1875 Chaffers, Edward, F.R.C.S., 54, North street, Keighley, Yorkshire.

1876* Champneys, Francis Henry, M.A., M.D. Oxon., F.R.C.P., Obstetric Physician to, and Lecturer on Midwifery at, St. George's Hospital, 60, Great Cumberland place, W. *Council*, 1880-1. *Hon. Lib.* 1882-3. *Hon. Sec.* 1884-7. *Vice-Pres.* 1888-90. *Board Exam. Midwives*, 1883, 1888-90. *Trans.* 16.

1859 Chance, Edward John, F.R.C.S., Surgeon to the Metropolitan Free Hospital and City Orthopædic Hospital; 14, Russell square, W.C.

1886 Chapman, Charles William, L.R.C.P. Lond., The Firs, Cheam, Surrey.

1867* Charles, T. Edmondstoune, M.D., Cannes, France. *Council*, 1882-4.

1874 Charlesworth, James, 25, Birch terrace, Hanley, Staffordshire.

1886 Charpentier, Ambrose E. L., M.D. Durh., 129, High street, Uxbridge.

1868 Child, Edwin, "Vernham," New Malden, Kingston-on-Thames, Surrey.

1890 Childe, Charles Plumley, B.A., L.R.C.P. Lond., Camden House, Kent road, Southsea.

1883 Childs, Christopher, M.A., M.B. Oxon., 2, Royal terrace, Weymouth. *Hon. Loc. Sec.*

1863* Chisholm, Edwin, M.D., Abergeldie, Ashfield, near Sydney, New South Wales. [Per Messrs. Turner and Henderson, care of Messrs. W. Dawson, 121, Cannon street, E.C.].

1885 Chittenden, Thomas Hillier, L.R.C.P. Lond., Garden House, Wheathampstead, Herts.

1883 Clapham, Edward, M.D., 29, Lingfield road, Wimbledon.

1859 Claremont, Claude Clarke, Millbrook House, 1, Hampstead road, N.W.

1879 Clarke, Reginald, South Lodge, Lee park, Lee, S.E.

Elected

1886* Cross, William Joseph, M.B., Horsham, Victoria, Australia.

1889 Crouch, Edward Thomas, Lee House, Stoke road, Gosport.

1875* Cullingworth, Charles James, M.D., F.R.C.P., Obstetric Physician to, and Lecturer on Obstetric Medicine at, St. Thomas's Hospital; 46, Brook street, Grosvenor square, W. *Council*, 1883-5. *Vice-Pres.* 1886-8. *Board Exam. Midwives*, 1889-90. *Trans.* 6.

1859 Curgenven, J. Brendon, 11, Craven hill gardens, Bayswater, W. *Council*, 1870-72. *Trans.* 3.

1889 Cursetji, Jehángir J., M.D. Brux., 94, Chundunwádi, Bombay.

1885 Dakin, W. Radford, M.D., Obstetric Physician to Out-Patients, Great Northern Central Hospital; 57, Welbeck street, Cavendish square, W. *Council*, 1889-90 *Trans.* 1.

1868 Daly, Frederick Henry, M.D., 185, Amhurst road, Hackney Downs, N.E. *Council*, 1877-9. *Vice-Pres* 1883-5. *Trans.* 2.

1882 Dambrill-Davies, William R., Alderley Edge, Cheshire.

1888 Dane, Robert, 86, Finchley road, N.W.

1884 Darwin, George Henry, M.R.C.P., The Cedars, Albert park, Didsbury, near Manchester.

1889 Davies, Frederick Henry, M.B., C.M. Edin., Tilbury, Essex.

1876 Davies, Gomer, L.R.C.P. Ed., 9, Pembridge villas, Bayswater, W.

1884 Davies, John, 91, New North road, N.

1885 Davies, William Morriston, M.D., 55, Gordon square, W.C.

1877 Davson, Smith Houston, M.D., Campden villa, 203, Maida vale, W. *Council*, 1889-90.

1889 Dawson, William Edward, L.K.Q.C.P. & L.M., 29, Chiswell street, E.C.

Elected

1878 Day, Edmund Overman, Assistant Surgeon to the Royal Infirmary for Children and Women, Waterloo Bridge road; 78, Waterloo road, S.E.

1880 Day, William Hankes, Surgeon to the City Prisons, Norwich; 3, Surrey street, Norwich. *Trans.* 1.

1859 Day, William Henry, M.D., Physician to the Samaritan Free Hospital for Women and Children; 10, Manchester square, W. *Council*, 1873-75. *Vice-Pres.* 1885-6.

1889 Des Vœux, Harold A., M.D. Brux., 11, Carlisle Mansions, Ashley place, Victoria street, S.W.

1877 Dewar, John, L.R.C.P. Ed., 132, Sloane street, S.W.

1885 D'Monte, Dominick A., M.D., Bandora, Bombay.

1887 Dodson, Arthur Edward, L.R.C.P. and L.M. Ed., Windermere villas, Earlsfield, Tooting, S.W.

1879 Dolan, Thomas Michael, M.D., Horton house, Halifax.

1886 Donald, Archibald, M.A., M.D. Edin., 274, Oxford road, Manchester. *Trans.* 1.

1879 Doran, Alban H. G., F.R.C.S., Surgeon to the Samaritan Free Hospital; 9, Granville place, Portman square, W. *Council*, 1883-5. *Hon. Lib.* 1886-7. *Hon. Sec.* 1888-90. *Trans.* 9.

1890 Douty, Edward Henry, M.A., M.B., B.C. Cantab., 69, Bridge street, Cambridge.

1887 Dovaston, Milward Edmund, 81, Queen's crescent, Haverstock hill, N.W.

1880 Downes, Denis Sidney, L.K.Q.C.P. I., 55, Kentish town road, N.W.

1884 Doyle, E. A. Gaynes, L.R.C.P., Colonial Hospital, Port of Spain, Trinidad.

O.F. Drage, Charles, M.D., Hatfield, Herts. *Council*, 1861-4. *Trans.* 1.

1885 Drage, Lovell, M.A., M.B., B.S. (Oxon), Burleigh Mead, Hatfield.

Elected

1871 Drake-Brockman, Edward Forster, F.R.C S., L.R.C.P. Lond., Surgeon-Major; Superintendent Eye Infirmary, Madras; Professor of Physiology and Ophthalmology, Madras Medical College. [*Per* Messrs. Richardson and Co., East India Army Agency, 25, Suffolk street, Pall Mall, S.W.]

1884 Drake, Charles Henry, 204, Brixton hill, S.W.

1884 Duke, John C., The Glen, Lewisham, S.E.

1883 Duncan, Alexander George, M.B., 25, Amhurst park, Stamford hill, N.E.

O.F. Duncan, James, M.B., 8, Henrietta street, Covent garden, W.C. *Council*, 1873-74.

1888 Duncan, William, L.R.C.P. & S.Ed., 17, Redland grove, Bristol.

1882 Duncan, William, M.D., Obstetric Physician to, and Lecturer on Obstetric Medicine at, the Middlesex Hospital; 6, Harley street, W. *Council*, 1885-6, 1888-89. *Hon. Lib.* 1890. *Trans.* 1.

1871 Eastes, George, M.B., F.R.C.S., 35, Gloucester place, Hyde park, W. *Council*, 1878-80.

1883 Eccles, F. Richard, M.D., Examiner for the College of Physicians and Surgeons, Ontario; Professor of Physiology, Western University; 1, Ellwood place, Queen's avenue, London, Ontario, Canada.

1879 Elder, George, M.D., C.M., Surgeon to the Samaritan Hospital for Women, Nottingham; 17, Regent street, Nottingham.

1879 Elkington, Arthur Guy, Deputy Surgeon-General, late Grenadier Guards, 52, Gillingham street, Eccleston square, S.W. *Council*, 1886-7. *Vice-Pres.* 1890.

1878 Ellery, Richard, L.R.C.P. Ed., Plympton, Devon.

1873 Engelmann, George Julius, A.M., M.D., 3003, Locust street, St. Louis, Missouri, U.S.

1884 English, Thomas Johnston, M.D., 128, Fulham road, S.W.

1875 Ewart, John Henry, Eastney, Devonshire place, Eastbourne.

Elected

1876 Farncombe, Richard, 40, Belgrave street, Balsall heath, Birmingham.

1869 Farquhar, William, M.D., Deputy Surgeon-General, Coonoor, Neilgherries, Madras.

1861 Farr, Geo. F., L.R.C.P. Ed., Slade House, 175, Kennington road, S.E. *Council*, 1885.

1882 Farrar, Joseph, M.D., Gainsborough.

1868 Fegan, Richard, M.D., Westcombe park, Blackheath, S.E.

1888 Fegen, Charles Milton, Devonshire House, Brandon, Suffolk.

1886 Fennell, David, L.K.Q.C.P.I., 12, Devonshire terrace, Hastings.

1883 Fenton, Hugh, M.D., 29, Brook street, Grosvenor square, W.

1886 Fisher, Frederick Bazley, L.R.C.P. Lond., West Walk, Dorchester.

1870 Fisher, John Moore, M.D., 6, Pryme street, Hull.

1882 Fitzgerald, Charles Egerton, M.D., West Terrace, Folkestone. *Hon. Loc. Sec.*

1877* Fonmartin, Henry de, M.D., 1, Anchor Gate terrace, Portsea.

1884 Ford, Alexander, L.R.C.P. Ed., 9, Beresford street, Waterford.

1877* Ford, James, M.D., Eltham, Kent.

1884 Fouracre, Robert Perriman, 20, Tollington park, N.

1886 Fowler, Charles Owen, M.D., Trevor Lodge, Thornton heath, S.W.

1875* Fraser, Angus, M.D., Physician and Lecturer on Clinical Medicine to the Aberdeen Royal Infirmary; 232, Union street, Aberdeen.

1888 Fraser, James Alexander, L.R.C.P. Lond., Western Lodge, Romford.

1886 Freeland, Ernest Harding, L.R.C.P. Lond., care of Peninsular and Oriental Steamship Company, Leadenhall street, E.C.

Elected

1867 Freeman, Henry W., 24, Circus, Bath.

1880 Fry, John Blount, Ashley Lodge, Esher, Surrey.

1883 Fuller, Henry Roxburgh, M.D. Cantab., 45, Curzon street, Mayfair, W. *Trans.* 1.

1886 Furner, Willoughby, F.R.C.S., 2, Brunswick place, West Brighton. *Hon. Loc. Sec.*

1874* Galabin, Alfred Lewis, M.A., M.D., Obstetric Physician to, and Lecturer on Midwifery at, Guy's Hospital; 49, Wimpole street, Cavendish square, W. *Council*, 1876-78. *Hon. Lib.* 1879. *Hon. Sec.* 1880-3. *Vice-Pres.* 1884. *Treas.* 1885-8. *Pres.* 1889-90. *Trans.* 12.

1888 Galloway, Arthur Wilton, L.R.C.P. Lond., 79, New North road, N.

1863 Galton, John H., M.D., Chunam, Sylvan road, Upper Norwood, S.E. *Council*, 1874-6.

1881 Gandy, William, Hill Top, Central hill, Norwood, S.E.

1886 Garde, Henry Croker, F.R.C.S. Edin., Maryborough, Queensland.

1887 Gardiner, Bruce H. J., L.R.C.P. Ed., Gloucester House, Barry road, East Dulwich, S.E.

1879 Gardner, John Twiname, 6, Hillsboro' terrace, Ilfracombe.

1872 Gardner, William, M.A., M.D., Professor of Gynæcology, McGill University; Gynæcologist to the Montreal General Hospital; 109, Union avenue, Montreal, Canada.

1876 Garner, John, 52, New Hall street, Birmingham.

1873 Garton, William, M.D., F.R.C.S., 5, Hawkshead street, Southport.

1889* Gell, Henry Willingham, M.A., M.B. Oxon., 43, Albion street, Hyde park, W.

1859* Gervis, Henry, M.D., F.R.C.P., Consulting Obstetric Physician to St. Thomas's Hospital; 40, Harley street, Cavendish square. *Council*, 1864-66, 1889-90. *Hon. Sec.* 1867-70. *Vice-Pres.* 1871-3. *Treas.* 1878-81. *Pres.* 1883-4. *Trans.* 8.

Elected

1866 Gervis, Frederick Heudebourck, 1, Fellows road Haverstock hill, N.W. *Council*, 1877-9. *Trans.* 1.

1884 Gibb, Charles John, M.D., Westgate House, Newcastle-on-Tyne.

1875 Gibbings, Alfred Thomas, M.D., 93, Richmond road, Dalston, N.E. *Council*, 1885-6, 1888.

1883 Gibbons, Robert Alexander, M.D., Physician to the Grosvenor Hospital for Women and Children; 29, Cadogan place, S.W. *Council*, 1889-90. *Trans.* 1.

1874 Gibson, James Edward, Hillside, West Cowes, Isle of Wight.

1877 Giffard, Douglas William, 5, Pavilion parade, Old Steyne, Brighton.

1869 Gill, William, L.R.C.P. Lond., 11, Russell square, W.C.

1871 Goddard, Eugene, M.D. Durh., North Lynne, Highbury New Park, N. *Trans.* 1.

1876 Godfray, Alfred Charles, M.B., St. Helier House, Jersey.

1871 Godson, Clement, M.D., C.M., Assistant Physician-Accoucheur to St. Bartholomew's Hospital; 9, Grosvenor street, W. *Council*, 1876-77. *Hon. Sec.* 1878-81. *Vice-Pres.* 1882-4. *Board Exam. Midwives*, 1877, 1882-86. *Trans.* 5.

1868 Godwin, Ashton, M.D., 28, Brompton crescent, Brompton, S.W.

1873 Goodchild, Nathaniel, L.R.C.P. Ed., Sidney House, Highgate road, N.W.

1883 Gordon, John, M.D., 10, Amersham road, New Cross, S.E.

1869 Goss, Tregenna Biddulph, 1, The Circus, Bath. *Hon. Loc. Sec.*

1889 Goullet, Charles Arthur, L.R.C.P. Lond., 2, Finchley road, N.W.

1884 Gowans, William, F.R.C.S. Ed., 1, Victoria terrace, South Shields.

1889 Graham, Arthur, L.R.C.P. & S. Ed., 4, Westbourne place, S.W.

1885 Grant, Ogilvie, M.D., Queen Mary's House, Inverness.

Elected

1890 Gray, Harry St. Clair, M.D. Glas., 15, Newton terrace, Glasgow.

1875 Gray, James, M.D., 15, Newton terrace, Glasgow.

1884 Greene, Walter, L.R.C.P. Lond., Wallingford.

1887 Greenwood, Edwin Climson, L.R.C.P., 19, St. John's wood park, N.W.

1863 Griffith, G. de Gorrequer, 34, St. George's square, S.W. *Trans.* 2.

1869 Griffith, John T., M.D., Talfourd House, Camberwell, S.E. *Council*, 1884-6.

1879* Griffith, Walter Spencer Anderson, M.D. Cantab., F.R.C.S., M.R.C.P., Obstetric Physician to the Great Northern Central Hospital; Tutor in Obstetrics and Gynæcology at St. Bartholomew's Hospital; 114, Harley street, W. *Council*, 1886-8. *Board Exam. Midwives*, 1887-89. *Trans.* 3.

1870 Grigg, William Chapman, M.D., Physician to the In-patients, Queen Charlotte's Lying-in Hospital; Assistant Obstetric Physician to the Westminster Hospital; 27, Curzon street, Mayfair. *Council*, 1875-77. *Board Exam. Midwives*, 1878-79.

1888* Grimsdale, Thomas Babington, B.A., M.B. Cantab., 50, Rodney street, Liverpool.

O.F. Grimsdale, Thos. F., L.R.C.P. Ed., Consulting Surgeon to the Lying-in Hospital; 29, Rodney street, Liverpool. *Council*, 1861-62. *Vice-Pres.* 1875-76.

1882 Gripper, Walter, M.B. Cantab., The Poplars, Wallington, Surrey.

1880 Grogono, Walter Atkins, Berwick House, Broadway, Stratford, E.

1879 Grove, William Richard, M.D., St. Ives, Huntingdonshire.

1887 Growse, William, L.R.C.P. Lond., Marton, near Rugby.

1885 Grün, Edward Ferdinand, 2, Lower Richmond road, Putney, S.W.

1887 Hackney, John, M.D. St. And., Oaklands, Hythe.

Elected

1867 Hadaway, James, L.R.C.P. Ed., Dent-de-Lion Villa, Garlinge, near Margate.

1876 Hadden, John, M.D., 31, West street, Horncastle, Lincolnshire.

1881 Hair, James, M.D., Brinklow, Coventry.

1889 Hale, Charles D. B., L.R.C.P. Lond., 8, Sussex gardens, Hyde park, W.

1859 Hall, Frederick, 1, Jermyn street, St. James's, S.W.

1889 Hall, Frederick, M.D. St. And., St. Mark's House, Leeds.

1871 Hallowes, Frederick B., Redhill, Reigate, Surrey. *Council*, 1885-6, 1888-90.

1880 Hames, George Henry, F.R.C.S., 2, Queensborough terrace, W.

1887 Hamilton, John, F.R.C.S. Ed., Swadlincote, Burton-on-Trent.

1883 Handfield-Jones, Montagu, M.D. Lond., M.R.C.P., Joint-Lecturer on Midwifery at, and Physician Accoucheur in charge of Out-patients to, St. Mary's Hospital; 24, Montagu square, W. *Council*, 1887-89. *Trans.* 1.

1860 Hardey, Key, Surgeon to the West City Dispensary; 4, Wardrobe place, Doctors' Commons, E.C.

1889 Hardwick, Arthur, M.D. Durh., Newquay, Cornwall.

1886 Hardy, Henry L. P., Holly Lodge, Richmond road, Kingston-on-Thames.

1889 Harper, Charles John, L.R.C.P. Lond., Church end, Finchley, N.

1877 Harper, Gerald S., M.B. Aber., 5, Hertford street, Mayfair, W.

1878 Harries, Thomas Davies, F.R.C.S., Grosvenor House, Aberystwith, Cardiganshire.

1867 Harris, William H., M.D., 78, Oxford gardens, W.

1861 Harris, William John, Church House, Heene, Worthing. *Hon. Loc. Sec.*

1880* Harrison, Richard Charlton, 13, Sandringham gardens, Ealing, W.

Elected

1886 HARTLEY, HORACE, L.R.C.P. Ed., Stone, Staffordshire.

1886 HARTLEY, REGINALD, L.R.C.P. Ed., Kirkgate House, Thirsk.

1880 HARVEY, JOHN STEPHENSON, 69, Rue Faidherbe, Boulogne-sur-Mer, France.

1865 HARVEY, ROBERT, M.D., 52, Chowringhee, Calcutta. [Per Messrs. Cochran and Macpherson, 152, Union street, Aberdeen.] *Trans.* 1. *Hon. Loc. Sec.*

1886 HARVEY, SIDNEY FRED., L.R.C.P. Lond., 42, Perham road, West Kensington, W.

1888 HAYCOCK, HENRY EDWARD, L.R.C.P. Ed., Whitwell, Welwyn.

1865 HAYES, HAWKESLEY ROCHE, Basingstoke, Hants.

1873 HAYES, THOMAS CRAWFORD, M.D., F.R.C.P., Assistant Obstetric Physician to King's College Hospital; 17, Clarges street, Piccadilly, W. *Council*, 1876-78. *Vice-Pres.* 1890.

1880 HEATH, WILLIAM LENTON, M.B., 88A, Cromwell road, Queen's gate, S.W. *Trans.* 1.

1890 HELME, T. ARTHUR, M.D. Edin., St. Mary's Hospital, Manchester.

1867 HEMBROUGH, JOHN WILLIAM, Ivy Cottage, Waltham, Grimsby.

1881 HEPBURN, WILLIAM ALEX., Rosslyn House, Coxhoe, Co. Durham.

1876* HERMAN, GEORGE ERNEST, M.B., F.R.C.P., Obstetric Physician to, and Lecturer on Midwifery at, the London Hospital; 20, Harley street, Cavendish square, W. *Council*, 1878-79. *Hon. Lib.* 1880-1. *Hon. Sec.* 1882-5. *Vice-Pres.* 1886-7. *Board Exam. Midwives*, 1886-88. *Treas.* 1889-90. *Trans.* 19.

1887 HEWITT, FREDERIC WILLIAM, M.D. Cantab., 10, George street, Hanover square, W.

O.F. HEWITT, GRAILY, M.D., F.R.C.P., F.R.S. Ed., Consulting Obstetric Physician to University College Hospital; 36, Berkeley square, W. *Hon. Sec.* 1859-64. *Treas.* 1865-66. *Vice-Pres.* 1867-68. *Pres.* 1869-70. *Trans.* 21.

Elected

1860 Hicks, John Braxton, M.D., F.R.C.P., F.R.S., Physician Accoucheur to, and Lecturer on Midwifery and Diseases of Women at, St. Mary's Hospital; 24, George street, Hanover square. *Council*, 1861-2, 1869. *Hon. Sec.* 1863-65. *Vice-Pres.* 1866-68. *Treas.* 1870. *Pres.* 1871-2. *Trans.* 37.

1860 Higgs, Thomas Frederic, M.D., Beaconsfield House, Dudley, Worcestershire.

1886 Hoar, Charles, M.B., C.M. Aber., Bantony House, Hurst Green, Hawkhurst (Railway Station Robertsbridge).

1886 Hodges, Herbert Chamney, L.R.C.P. Lond., Watton, Herts. *Trans.* 1.

O.F. Hodges, Richard, M.D., F.R.C.S., 36, Harewood square, N.W. *Trans.* 3.

1887 Hodson, Henry Algernon, L.R.C.P. Ed. & L.M., 23, Brunswick square, Brighton.

1886 Holberton, Henry Nelson, L.R.C.P. Lond., East Molesey.

1875 Hollings, Edwin, M.D., 4, Gordon street, Gordon square, W.C. *Council*, 1888-90.

1886 Holloway, William George, B.A., M.B. Cantab., East Sussex Hospital, Hastings.

1859 Holman, Constantine, M.D., The Barons, Reigate, Surrey. *Council*, 1867-69. *Vice-Pres.* 1870-71.

1880 Honiball, Oscar Dunscombe, M.D., George Town, Demerara, British Guiana.

1864 Hood, Wharton Peter, M.D., 11, Seymour street, Portman square, W.

1872 Hope, William, M.D., Physician to Queen Charlotte's Lying-in Hospital; 56, Curzon street, Mayfair, W. *Council*, 1877-9. *Board Exam. Midwives*, 1873-4.

1884 Hopkins, John, L.R.C.P. Ed., 93, Camberwell road, S.E.

1883* Horrocks, Peter, M.D., F.R.C.P. Lond., Assistant Obstetric Physician to, and Demonstrator of Practical Obstetrics at, Guy's Hospital; 26, St. Thomas's street, S.E. *Council*, 1886-7. *Hon. Lib.* 1888-9. *Hon. Sec.* 1890. *Trans.* 1.

Elected

1876 Horsman, Godfrey Charles, 22, King street, Portman square, W.

1883 Hoskin, Theophilus, L.R.C.P. Lond., 186, Amhurst road, N.E.

1883 Houchin, Edmund King, L.R.C.P. Ed., 23, High street, Stepney, E.

1884 Hough, Charles Henry, Full street, Derby.

1877 Howell, Horace Sydney, M.D., East Grove House, 18, Boundary road, St. John's Wood, N.W.

1879 Hubbard, Thomas Wells, Lenham, Bromley, Kent.

1885 Hughes, Edgar A., L.R.C.P. Lond., 91, Onslow gardens, S.W.

1889 Humphrys, Charles Beyer, L.R.C.P. & S. Edin., The Poplars, Horsmonden, Kent.

1884* Hurry, Jamieson Boyd, M.D. Cantab., 43, Castle street, Reading. *Council*, 1887-9. *Trans.* 1.

1878 Husband, Walter Edward, 56, Bury New road, Manchester.

1882 Hutton, Robert James, L.R.C.P. Ed., Carshalton House, Stapleton Hall road, Finsbury park, N.

1883 Inman, Robert Edward, 243, Hackney road, E.

1884 Irwin, John Arthur, M.A., M.D., 427, Fifth avenue, New York.

1887 Jackson, G. E. Corrie, F.R.C.S. Ed., 17, Poland street, W.

1883 Jackson, George Henry, Lansdowne House, Tottenham.

1884 Jackson, James, 15, Huntingdon street, Barnsbury, N.

1864 Jackson, Robert, M.D., 53, Notting hill square, W. *Council*, 1885.

1886 Jacomb-Hood, Charles John, L.R.C.P., Broadwater House, Tunbridge Wells.

1873 Jakins, William Vosper, L.R.C.P. Ed., 165, Collins street East, Melbourne.

1872 Jalland, Robert, Horncastle, Lincolnshire. *Trans.* 1.

1890 James, Charles Henry, L.R.C.P. Lond., General Lying-in Hospital, York road, S.E.

Elected

1877 Jamieson, Patrick, M.A., 3, St. Peter's street, Peterhead, Aberdeenshire.

1885 Jamieson, Robert Alexander, M.D., Shanghai. [Per Messrs. Henry S. King and Co., 65, Cornhill, E.C.]

1886 Jamison, Arthur Andrew, M.D. Glas., 26, Lowndes street, S.W.

1883* Jenkins, Edward Johnstone, M.B. Oxon., Australian Club, Sydney. [Per H. K. Lewis, 136, Gower street, W. C.]

1877 Jenks, Edward W., M.D., 84, Lafayette avenue, Detroit, Michigan, U.S.

1882 Jennings, Charles Egerton, F.R.C.S. Eng., Assistant Surgeon to the North-West London Hospital; 15, Upper Brook street, Grosvenor square, W.

1889 Johns, Henry Douglas, L.R.C.P., The Dispensary, Gateshead.

1883 Johnson, Arthur Jukes, M.B., 52, Bloor street West, Toronto, Ontario, Canada.

1888 Johnson, John George, L.R.C.P. Lond., Concrete House, Swindon.

1877 Johnson, Samuel, M.D., 5, Hill street, Stoke-upon-Trent.

1881 Johnston, Joseph, M.D., 24, St. John's Wood park, N.W.

1879 Johnston, Wm. Beech, M.D., 157, Jamaica road, Bermondsey, S.E.

1868 Jones, Evan, Ty-Mawr, Aberdare, Glamorganshire. *Council*, 1886-8. *Vice.-Pres.* 1890. *Hon. Loc. Sec.*

1878 Jones, H. Macnaughton, M.D., F.R.C.S.I. and Edin., 141, Harley street, Cavendish square, W.

1881 Jones, James Robert, M.B., 171, Donald street, Winnipeg, Manitoba, Canada.

1868 Jones, John, 60, King street, Regent street, W.

1887 Jones, J. Talfourd, M.B. Lond., Rose Bank, South terrace Eastbourne.

1876 Jones, Leslie, M.D., C.M., Limefield House, Cheetham Hill, Manchester.

1886 Jones, Lewis, M.D., Oakmead, Balham, S.W.

Elected

1885 Jones, P. Sydney, M.D., 16, College street, Hyde park, Sydney. [Per Messrs. D. Jones and Co., 1, Gresham buildings, Basinghall street, E.C.]

1873 Jones, Philip W., Silver street, Enfield.

1886 Jones, William Owen, The Downs, Bowden, Manchester.

1879 Joubert, Charles Henry, M.B. Lond., F.R.C.S. Eng., Surgeon-Major, Bengal Medical Dept., 54, Chowringhee, Calcutta.

1878 Judson, Thomas Robert, L.R.C.P. Lond., Hayman's Green, West Derby, Liverpool.

1875 Jukes, Augustus, M.B., N. W. Mounted Police, Regina, N.-W. Territory, Canada.

1878 Kane, Nathaniel H. K., M.D., Lanherne, Kingston hill, Surrey.

1884 Keates, William Cooper, L.R.C.P., 2, Tredegar villas, East Dulwich road, S.E.

1880 Kebbell, Alfred, Flaxton, York.

O.F. Keele, George Thomas, 81, St. Paul's road, Highbury, N. *Council*, 1885.

1883 Keeling, James Hurd, M.D., 267, Glossop road, Sheffield. *Hon. Loc. Sec.*

1874 Kempster, William Henry, M.D., Oak House, Bridge road, Battersea, S.W.

1886 Kennedy, Alfred Edmund, L.R.C.P. Ed., Chesterton House, Plaistow, E.

1879 Ker, Hugh Richard, L.R.C.P. Ed., Townsend House, Hales-Owen.

1872 Kerr, Norman S., M.D., F.L.S., 42, Grove road, Regent's park, N.W.

1877* Kerswill, John Bedford, M.R.C.P. Ed., Fairfield, St. German's, Cornwall.

1878 Khory, Rustonjee Naserwanjee, M.D. Brussels, L.Med. Bombay, Physician to the Parell Dispensary, Bombay; Girgaum road, Bombay.

O.F. Kiallmark, Henry Walter, 5, Pembridge gardens, Bayswater. *Council*, 1879-80.

Elected

1860 Kingsford, Edward, F.R.C.S., Surgeon to the Sunbury Dispensary; Sunbury-on-Thames.

1872* Kisch, Albert, 3, Sutherland gardens, Maida vale, W.

1876 Knott, Charles, M.R.C.P. Ed., Liz Ville, Elm grove, Southsea.

1889 Lake, George Robert, 72, Gloucester crescent, Hyde park, W.

1867 Langford, Charles P., Sunnyside, Hornsey lane, N.

1887 Langhorne, Thomas Grant, Millicent, S. Australia.

1883 Langley, Aaron, L.R.C.P. Ed., 149, Walworth road, S.E

1886 Lankester, Herbert Henry, M.D. Lond., 1, Elm park gardens, South Kensington, S.W.

1886 Lauder, William, M.D. Edin., 260, Oxford road, Manchester.

1887 Law, William Thomas, M.D. Edin., 9, Norfolk crescent, W.

1875 Lawrence, Alfred Edward Aust, M.D., Physician-Accoucheur to the Bristol General Hospital; 15, Richmond hill, Clifton, Bristol. *Council*, 1885-86, 1888. *Vice-Pres.*, 1889-90. *Hon. Loc. Sec.*

1878 Leachman, Albert Warren, M.D., Fairley, Petersfield, Hants.

1884* Lediard, Henry Ambrose, M.D., 43, Lowther street, Carlisle. *Council*, 1890. *Trans.* 1.

1887 Lees, Edwin Leonard, M.B., C.M. Ed., 2, The Avenue, Redland road, Bristol.

1860 Leishman, William, M.D., Physician to the University Lying-in Hospital, Regius Professor of Midwifery in the University of Glasgow; 11, Woodside crescent, Glasgow. *Council*, 1866-68. *Vice-Pres.* 1869-70. *Trans.* 1.

1885 Lewers, Arthur H. N., M.D. Lond., M.R.C.P., Assistant Obstetric Physician to the London Hospital; 60. Wimpole street, W. *Council*, 1887-89. *Trans.* 5.

1890 Lewis, Ernest E., L.R.C.P. Lond., Middlesex Hospital, W.

1877 Lewis, John Riggs Miller, M.D., Deputy-Surgeon General, Markham Lodge, Liverpool road, Kingston hiill, Surrey.

Elected

1885 LIDIARD, SYDNEY ROBERT, L.R.C.P. Ed., 48, Charlotte street, Hull.

1875 LIEBMAN, CARLO, M.D. Vienna, Principal Surgeon, Trieste Civil Hospital, Trieste, Austria. *Trans.* 1.

1874 LITHGOW, ROBERT ALEXANDER DOUGLAS, M.R.C.P. Ed., 27A, Lowndes street, Belgrave square, S.W.

1868 LLEWELLYN, EVAN, L.R.C.P. Ed., The Limes, Bow road, E.

1872* LOCK, JOHN GRIFFITH, M.A., 2, Rock terrace, Tenby.

1859 LOMBE, THOMAS ROBERT, M.D., Bemerton, Torquay.

1862 LOWE, GEORGE, F.R.C.S., 5, Horninglow street, Burton-on-Trent, Staffordshire. *Council*, 1887-89. *Trans.* 2. *Hon. Loc. Sec.*

1873 LUSH, WILLIAM JOHN HENRY, M.D. Brussels, Fyfield House, Andover.

1878* LYCETT, JOHN ALLAN, M.D., The "Hollies," Graiseley, Wolverhampton.

1871 MCCALLUM, DUNCAN CAMPBELL, M.D., Emeritus Professor, McGill University; 45, Union avenue, Montreal, Canada. *Trans.* 4.

1884 MCCARTHY, GEORGE FRANCIS, L.K.Q.C.P., 138, Westminster Bridge road, S.E.

1879 MACKEOUGH, GEORGE J., M.D., Chatham, Ontario, Canada.

1888 MACKERN, JOHN, B.A., M.D. Cantab., F.R.C.S., 30, Cambridge street, Hyde park, W.

O.F. MACKINDER, DRAPER, M.D., Consulting Surgeon to the Gainsborough Dispensary; Gainsborough, Lincolnshire. *Council*, 1871-3. *Trans.* 2.

1879 MACLAURIN, HENRY NORMAND, M.D., 155, Macquarie street, Sydney, New South Wales.

1886 MCMULLEN, WILLIAM, L.K.Q.C.P.I., 319A, Brixton road, S.W.

1859 MADGE, HENRY M., M.D., 4, Upper Wimpole street, W. *Council*, 1863-65, 1884. *Vice-Pres.* 1872-4. *Trans.* 15.

1884 MALCOLM, JOHN D., M.B., C.M., 24, Bryanston street, W.

Elected

1871 Malins, Edward, M.D., Obstetric Physician to the General Hospital, Birmingham ; 8, Old square, Birmingham. *Council*, 1881-3. *Vice-Pres.* 1884-6. *Hon. Loc. Sec.*

1876 Manby, Frederick Edward, 10, King street, Wolverhampton.

1868* March, Henry Colley, M.D., 2, West street, Rochdale. *Council*, 1890.

1887 Mark, Leonard P., L.R.C.P. Lond., 19, Upper Berkeley street, Portman square, W.

1860 Marley, Henry Frederick, The Nook, Padstow, Cornwall.

1862 Marriott, Robert Buchanan, Swaffham, Norfolk.

1887 Marsh, O. E. Bulwer, L.R.C.P. Ed., Ventnor House, Newport, Monmouthshire.

1890 Martin, Christopher, M.B., C.M. Edin., North Riding Infirmary, Middlesborough.

1873 Martin, Henry Charrington, M.B., C.M., 11, Somers place, Hyde park, W.

1887 Mason, Arthur Henry, L.R.C.P. Lond., High street, Walton-on-Thames.

1884 Massey, Hugh Holland, 2, North terrace, Camberwell, S.E.

1884 Masters, John Alfred, L.R.C.P. Lond., Westall House, Brook green, W.

1877 Maunsell, H. Widenham, A.M., M.D., Pitt and London street, Dunedin, New Zealand.

1883 Maurice, Oliver Calley, 75, London street, Reading. *Council*, 1888-90.

1890 May, Chichester Gould, M.A., M.B. Cantab., 13, Fitzwilliam square, Dublin.

1877 May, Lewis James, Bountis Thorne, Seven Sisters road, Finsbury park, N.

1884 Maynard, Edward Charles, L.R.C.P. Ed., 11, Shellons street, Folkestone.

1885 Meller, Charles Booth, L.R.C.P. Ed., Cowbridge, Glamorganshire.

Elected

1886 MENNELL, ZEBULON, 31, Shepherd's Bush road, W.

1882 MEREDITH, WILLIAM APPLETON, M.B., C.M., Surgeon to the Samaritan Free Hospital for Women and Children; 6, Queen Anne street, Cavendish square, W. *Council.* 1886-8. *Trans.* 2.

1875* MILES, ABIJAH J., M.D., Professor of Diseases of Women and Children in the Cincinnati College of Medicine, Cincinnati, Ohio, U.S.

1876 MILLMAN, THOMAS, M.D., 544, Spadina avenue, Toronto, Ontario, Canada.

1880 MILLS, ROBERT JAMES, M.B., M.C., All Saints' green, Norwich.

1886 MILNER, SAMUEL GEORGE, L.R.C.P. Ed., Hillside, Dulwich road, Norwood, S.E.

1876 MILSON, RICHARD HENRY, M.D., 88, Finchley road, South Hampstead, N.W. *Council*, 1890.

1869 MINNS, PEMBROKE R. J. B., M.D., Thetford, Norfolk.

1867 MITCHELL, ROBERT NATHAL, M.D., Chester House, Wickham road, Brockley, S.E.

1868 MOOTHOOSAWMY, P. S., M.D., F.L.S., Tanjore, Madras Presidency. *Trans.* 1.

1877 MOON, FREDERICK, M.B., Bexley house, Greenwich.

1873 MOON, ROBERT HENRY, F.R.C.S., 160, Norwood road, West Norwood, S.E.

1859 MOORHEAD, JOHN, M.D., Surgeon to the Weymouth Infirmary and Dispensary; Weymouth, Dorset.

1888 MORGAN, GEORGE JOHN, L.K.Q.C.P. & L.M., Dovaston House, Kinnerley, West Felton.

1888 MORISON, ALEXANDER, M.D. Ed., Dunnottar, 115, Green lanes, Stoke Newington, N.

1883 MORRIS, CLARKE KELLY, Gordon Lodge, Charlton road, Blackheath, S.E.

1886 MORTON, SHADFORTH, M.D. Durham, Wellesley villas, Croydon.

1887 MOSELEY, GEORGE WILKINS, M.B., C.M. Ed. (*Travelling*).

Elected

1879 Moullin, James A. Mansell, M.A., M.B., Assistant Physician to the Hospital for Women and Children, 69, Wimpole street, Cavendish square, W. *Trans.* 1.

1878 Mowat, George, 49, St. Peter street, St. Albans. *Trans.* 1.

1885 Murray, Charles Stormont, L.R.C.S. and L.M. Ed., 85, Gloucester place, Portman square, W.

1887 Murray, Horace H. C., 470, Hornsey road, N.

O.F. Musgrave, Johnson Thomas, L.R.C.P. Ed., Irlam Villa, 39, Finchley road, N.W. *Council*, 1859-60. *Trans.* 1.

1888 Myddelton-Gavey, Edward Herbert, 64, St. Matthew's street, Ipswich.

1887 Napier, A. D. Leith, M.D. Aber., 67, Grosvenor street, W.

1859 Neal, James, M.D., Parterre, Sandown, Isle of Wight.

1882 Nesham, Thomas Cargill, M.D., Lecturer on Midwifery in the University of Durham College of Medicine at Newcastle-on-Tyne; 12, Ellison place, Newcastle-on-Tyne. *Council*, 1889-90.

1859 Newman, William, M.D., Surgeon to the Stamford and Rutland Infirmary; Barn Hill House, Stamford, Lincolnshire. *Council*, 1873-75. *Vice-Pres.* 1876-77. *Trans.* 5.

1889 Newnham, William Harry Christopher, M.A., M.B. Cantab., The General Hospital, Bristol.

1873 Nicholson, Arthur, M.B. Lond., 98, Montpellier road, Brighton.

1879 Nicholson, Emilius Rowley, M.D., 89, Camden road, N.W.

1876 Nix, Edward James, M.D., 143, Great Portland street, W. *Council*, 1889-90.

1882 Norman, John Edward, Lismore House, Hebburn-on-Tyne.

1883 Nunn, Philip W. G., L.R.C.P. Lond., Maplestead, Christchurch road, Bournemouth.

1884 Oakes, Arthur, M.D., Chiswick, Milnthorpe road, Eastbourne.

1880 Oakley, John, Holly House, Wood's end, Halifax, Yorkshire.

Elected

1886 Ogle, Arthur Wesley, L.R.C.P. Lond., 90, Cannon street, E.C.

1876 Ogston, Francis, M.D., Lecturer on Hygiene and Medical Jurisprudence in the University of Otago; Dunedin, New Zealand (per Richard W. K. Bain, 146, Union street, Aberdeen).

O.F. Oldham, Henry, M.D., F.R.C.P., Consulting Obstetric Physician to Guy's Hospital; 4, Cavendish place, Cavendish square, W. *Vice-Pres.* 1859. *Council*, 1860, 1865-66. *Treas.* 1861-62. *Pres.* 1863-64. *Trans.* 1. *Trustee.*

1888 Oliver, Franklin Hewitt, L.R.C.P. Lond., 2, Kingsland road, E.

1889 Oliver, James, M.D., F.R.S. Edin., 18, Gordon square, W.C.

1884 Openshaw, Thomas Horrocks, M.B., M.S., 21, Gower street, W.C.

1869 Ord, George Rice, Streatham hill, Surrey. *Council*, 1881.

1880 Orton, Charles, M.D., Nelson place, Newcastle-under-Lyme, Staffordshire.

1877 Osterloh, Paul Rudolph, M.D. Leipzic; Dresden.

1863 Oswald, James Waddell Jeffries, M.D., 245, Kennington road, S.E. *Trans.* 4.

1889* Page, Harry Marmaduke, F.R.C.S., 4, St. Margaret's road, Oxford.

1883 Palmer, John Irwin, 21, Henrietta street, Cavendish square, W.

1877 Palmer, Montagu H. C., The Manor House, Newbury.

1886 Papillon, Thomas Alexander, L.R.C.P. Ed., Burley road, Oakham.

1877* Paramore, Richard, M.D., 2, Gordon square, W.C.

1867 Parks, John, Bank House, Manchester road, Bury, Lancashire.

1887 Parsons, John Inglis, M.D. Durh., 9, Collingham place, S.W.

Elected

1880 Parsons, Sidney, 78, Kensington Park road, W.

1889 Parsons, Thomas Edward, Paddock House, Ridgeway, Wimbledon, S.W.

1865* Paterson, James, M.D., Hayburn Bank, Partick, Glasgow.

1882* Peacey, William, M.B., 214, Lewisham High road, S.E.

1864 Pearson, David Ritchie, M.D., 23, Upper Phillimore place, Kensington, W.

1871 Pedler, George Henry, 6, Trevor terrace, Rutland gate, S.W.

1880 Pedley, Thomas Franklin, M.D., Rangoon, India. *Trans.* 1.

1881 Perigal, Arthur, M.D., New Barnet, Herts.

1871 Perrigo, James, M.D., 163, Bleury street, Montreal, Canada. *Hon. Loc. Sec.*

1879* Pesikaka, Hormasji Dosabhai, 23, Hornby row, Bombay.

1883 Pettifer, Edmund Henry, 32, Stoke Newington green, N.

1879 Phibbs, Robert Featherstone, M.R.C.P. Ed., 130, Elgin avenue, W.

1879 Phillips, George Richard Turner, 24, Leinster square, Bayswater, W.

1882 Phillips, John, B.A., M.D. Cantab., M.R.C.P., Assistant Obstetric Physician to King's College Hospital; 71, Grosvenor street, W. *Council*, 1887-9. *Trans.* 5.

1878 Philpot, Joseph Henry, M.D., 13, South Eaton place, S.W.

1871 Philps, Philip George, 21, Russell road, Kensington, W.

1876 Picard, P. Kirkpatrick, M.D., 59, Abbey road, St. John's Wood, N.W.

1874 Pigg, Thomas, M.D., M.R.C.P., Physician to the Manchester Southern Hospital for Women and Children; 98, Mosley street, Manchester.

1889 Pinhorn, Richard, L.R.C.P. Lond., 5, Cambridge terrace, Dover.

1889 Playfair, David Thomson, M.D., C.M. Edin., Redwood House, Bromley, Kent.

Elected

1864 Playfair, W. S., M.D., LL.D., F.R.C.P., Physician Accoucheur to H.I. & R.H. the Duchess of Edinburgh; Professor of Obstetric Medicine in King's College, and Obstetric Physician to King's College Hospital; 31, George street, Hanover square, W. *Council*, 1867. 1883-5. *Hon. Librarian*, 1868-9. *Hon. Sec.* 1870-72. *Vice-Pres.* 1873-5. *Pres.* 1879-80. *Trans.* 14.

1880 Pocock, Frederick Ernest, M.D., The Limes, St. Mark's road, Notting hill, W.

1883 Pocock, Walter, Gwydyr House, 58, Brixton hill, S.W.

O.F.* Pollard, William, Surgeon to the Torbay Hospital; Southlands, Torquay, Devon.

1883 Pook, William John, L.R.C.P., 2, Hemingford road, N.

1876 Pope, H. Campbell, M.D., F.R.C.S., Broomsgrove Villa, 280, Goldhawk road, Shepherd's Bush, W.

1888 Popham, Robert Brooks, L.R.C.P. & S. Ed., 67, Bartholomew road, Camden road, N.W.

1882 Porter, Joseph Francis, M.D., Helmsley, Yorkshire.

1864 Potter, John Baptiste, M.D., F.R.C.P., Obstetric Physician to, and Lecturer on Midwifery and Diseases of Women at, the Westminster Hospital; 20, George street, Hanover square, W. *Council*, 1872-6, 1890. *Hon. Lib.* 1877-8. *Vice-Pres.* 1879-81. *Treas.* 1882-4. *Board Exam. Midwives*, 1883-4. *Pres.* 1885-6. *Trans.* 1.

1875 Powdrell, John, 160, Euston road, N.W.

1884 Powell, John James, L.R.C.P. Lond., Norwood Lodge, Weybridge.

1863 Powell, Josiah T., M.D., 347, City road, E.C.

1885 Praeger, Emil Arnold, Nanaimo, British Columbia.

1886 Prangley, Henry John, L.R.C.P. Lond., 160, Anerley road, Anerley.

1888 Pratt, George A., Radcliffe Infirmary, Oxford.

1880 Prickett, Marmaduke, M.A. Cantab., M.D., Physician to the Samaritan Hospital; 12, Devonport street, Gloucester square, W.

Elected

O.F. Priestley, William O., M.D., LL.D., F.R.C.P., Consulting Obstetric Physician to King's College Hospital; 17, Hertford street, Mayfair, W. *Council*, 1859-61, 1865-66. *Vice-Pres.* 1867-69. *Pres.* 1875-76. *Trans.* 6.

1884 Pronger, Charles Ernest, L.R.C.P., 1, Barkston mansions, South Kensington, S.W.

1876* Quirke, Joseph, L.R.C.P. Ed., The Oaklands, Hunter's road, Handsworth, Birmingham.

1861 Rasch, Adolphus A. F., M.D., Physician for Diseases of Women to the German Hospital; 7, South street, Finsbury square, E.C. *Council*, 1871-3. *Trans.* 6.

1878 Rawlings, John Adams, M.R.C.P. Ed., 4, Northampton terrace, Swansea.

1870 Ray, Edward Reynolds, Dulwich, S.E.

1860* Rayner, John, M.D., Swaledale House, Quadrant road north, Highbury New park, N.

1879 Read, Thomas Laurence, 11, Petersham terrace, Queen's gate, S.W.

1874 Rees, William, Priory House, 129, Queen's crescent, Haverstock hill, N.W.

1890 Reid, Godfrey Forrest, M.D. Dubl., Bethlehem, Orange Free State, South Africa.

1879 Reid, William Loudon, M.D., Professor of Midwifery and Diseases of Women and Children, Anderson's College; Physician to the Glasgow Maternity Hospital; 7, Royal crescent, Glasgow.

1889 Remfry, Leonard, M.A., M.B. Cantab., The Grange, Nightingale lane, S.W.

1889 Rentoul, Robert Reid, M.D., 78, Hartington road, Liverpool.

1875* Rey, Eugenio, M.D., 39, Via Cavour, Turin.

1886 Richardson, Thomas Arthur, 26, London road, Croydon.

1872 Richardson, William L., M.D., A.M., Professor of Obstetrics in Harvard University; Physician to the Boston Lying-In Hospital; 225, Commonwealth avenue, Boston, Massachusetts, U.S.

Elected

1889 Richmond, Thomas, L.R.C.P. Ed., 26, Burnbank terrace, Glasgow.

1888 Riding, William Steer, M.D. Edin., 25, Endsleigh gardens, N.W.

1872 Rigden, George, Surgeon to the Canterbury Dispensary; 60, Burgate street, Canterbury. *Trans.* 1. *Hon. Loc. Sec.*

1871 Rigden, Walter 16, Thurloe place, S.W. *Council*, 1882-3. *Trans.* 1.

O.F.* Roberts, David Lloyd, M.D., F.R.C.P., F.R.S. Edin., Obstetric Physician to the Manchester Royal Infirmary; and Lecturer on Clinical Midwifery and the Diseases of Women in Owens College; 11, St. John street, Deansgate, Manchester. *Council*, 1868-70, 1880-2. *Vice-Pres.* 1871-2. *Trans.* 5.

1867 Roberts, David W., M.D., 56, Manchester street, Manchester square, W.

1883 Roberts, John Coryton, L.R.C.P. Ed., Avenue House, Peckham rye, S.E.

1874 Robertson, William Borwick, M.D., St. Anne's, Thurlow park road, West Dulwich, S.E.

1887 Robinson, Hugh Shapter, L.R.C.P. Ed., 12, North Bridge street, Monkwearmouth, Sunderland.

1884 Robinson, Luke, M.R.C.P. Lond., 217, Geary street, San Francisco, California.

1886 Roe, Arthur Dumville, B.A., M.B. Cantab., West hill, Wandsworth, S.W.

1876 Roe, John Withington, M.D., Ellesmere, Salop.

1874 Roots, William Henry, Canbury House, Kingston-on-Thames.

1874 Roper, Arthur, Lewisham hill, Blackheath, S.E. *Council*, 1886-8.

1865 Roper, George, M.D., Consulting Physician to the Royal Maternity Charity; Oulton Lodge, Aylsham, Norfolk. *Council*, 1875-77, 1883-5. *Vice-Pres.* 1879-81, 1889, *Board Exam. Midwives*, 1880-1, 1883-5. *Trans.* 10.

Elected

1859 Rose, Henry Cooper, M.D., Penrose House, Hampstead, N.W. *Council*, 1875-77. *Trans.* 4.

1887 Rosenau, Albert, M.D., Webergasse, 15, Wiesbaden.

1880 Ross, David Palmer, M.D., Freetown, Sierra Leone.

1883 Rosser, Walter, M.D., 1, Wellesley villas, Croydon.

1884 Rossiter, George Frederick, M.B., Surgeon to the Weston-super-Mare Hospital; Cairo Lodge, Weston-super-Mare.

1885 Roughton, Edmund Wilkinson, M.D., 28, Welbeck street, Cavendish square, W.

1884 Roughton, Walter, L.R.C.P. Lond., Station road, New Barnet.

1882 Routh, Amand, M.D., B.S., Assistant Obstetric Physician to, and Teacher of Practical Obstetrics and Gynæcology at, Charing Cross Hospital; 14a, Manchester square, W. *Council*, 1886-8. *Trans.* 1.

O.F. Routh, Charles Henry Felix, M.D., Consulting Physician to the Samaritan Free Hospital for Women and Children; 52, Montagu square, W. *Council*, 1859-61. *Vice-Pres.* 1874-6. *Trans.* 13.

1887 Rowbotham, Herbert C., Vale House, Melbourne, Derby.

1887* Rowe, Arthur Walton, M.D. Dur., 1, Cecil street, Margate.

1881 Roworth, Alfred Thomas, Grays, Essex.

1886 Rushworth, Frank, M.B. Lond., Langdale, Goldhurst terrace, South Hampstead, N.W.

1888 Rushworth, Norman, L.R.C.P. Lond., Beechfield, Walton-on-Thames.

1886 Rutherfoord, Henry Trotter, B.A., M.B. Cantab., 46, Queen Anne street, Cavendish square, W.

1866 Saboia, Baron V. de, M.D., Director of the School of Medicine, Rio de Janeiro; 34, Rua do Visconde Maranguapo, Rio de Janeiro. *Trans.* 2.

1883 Salter, Francis Joseph, L.R.C.P. Ed., 9, Lyddon terrace, Leeds.

Elected

1864 Salter, John H., D'Arcy House, Tolleshunt D'Arcy, Kelvedon, Essex.

1875* Salzmann, Frederick William; Senior Surgeon to the Hospital for Women; 18, Montpellier road, Brighton. *Council*, 1880-2. *Hon. Loc. Sec.*

1868* Sams, John Sutton, St. Peter's Lodge, Eltham road, Lee, S.E.

1886 Sanderson, Robert, M.B. Oxon., 33, Montpellier road, Brighton.

1872 Sangster, Charles, 148, Lambeth road, S.E.

1870 Saul, William, M.D., Lyndthorpe, Boscombe, Bournemouth.

1872 Savage, Thomas, M.D., Surgeon to the Birmingham and Midland Hospital for Women; 33, Newhall street, Birmingham. *Council*, 1878-80.

1877 Savory, Charles Tozer, M.D., 6, Douglas road, Canonbury, N. *Trans.* 1.

1870 Scott, John, M.D., New street, Sandwich.

1888 Scott, Patrick Cumin, B.A., M.B. Cantab., 38, Shooter's Hill road, Blackheath, S.E.

1866 Sequeira, James Scott, 68, Leman street, Goodman's fields, E., and Crescent House, Cassland crescent, Cassland road, South Hackney.

1882 Serjeant, David Maurice, M.D., 1, The Terrace, Camberwell, S.E.

1875 Seton, David Elphinstone, M.D., 110, Cromwell road, S.W. *Council*, 1884.

1860 Sewell, Charles Brodie, M.D., 21, Cavendish square, W., and 13, Fenchurch street, E.C. *Council*, 1880-2.

1887 Shannon, R. Alexander, L.R.C.P. Ed., Crofton, Orpington, Kent.

O.F. Sharpin, Henry Wilson, F.R.C.S., Surgeon to the Bedford General Infirmary, Bedford. *Council*, 1871-3. *Trans.* 1. *Hon. Loc. Sec.*

1887 Shaw, John, M.D. Lond., Obstetric Physician to the North West London Hospital; 34, Queen Anne street, Cavendish square, W. *Trans.* 1.

Elected

1867 Shepherd, Frederick, L.R.C.P. Ed., 33, King Henry's road, Primrose hill, N.W.

1890 Silk, John Frederick William, M.D. Lond., 6, Chandos street, W.

1886 Simmons, Fourness, M.B. Edin., 30, Albert terrace, Darlinghurst, Sydney, N.S.W.

1874 Sinclair, Alexander Doull, M.D., Consulting Physician to the Boston Lying-in Hospital; 35, Newbury street, Boston, Massachusetts, U.S.

1888 Sinclair, William Japp, M.D. Aber., Honorary Physician to the Southern Hospital for Women and Children and Maternity Hospital, Manchester; and Professor of Obstetrics and Gynæcology, Owens College, Manchester; 268, Oxford road, Manchester.

1876 Sirignano, Giosue, M.D., 24, Strada Banchi Nuovi, Napoli.

1879 Slight, George, M.D., 3, Clifford street, Bond street, W.

1881 Sloan, Archibald, M.B., 272, Bath street, Glasgow.

1876 Sloan, Samuel, M.D., C.M., 5, Somerset place, Sauchiehall street West, Glasgow.

1861 Slyman, William Daniel, 26, Caversham road, Kentish Town, N.W. *Council*, 1881.

1867 Smith, Heywood, M.D., 18, Harley street, Cavendish square, W. *Council*, 1872-5. *Board Exam. Midwives*, 1874-76. *Trans.* 6.

1888 Smith, Howard Lyon, L.R.C.P. Lond., 8, High street, Tring.

1875 Smith, Richard Thomas, M.D., Physician to the Hospital for Women, Soho square; 53, Haverstock hill, N.W.

1886 Smith, Samuel Parsons, L.K.Q.C.P.I., Park Hyrst, Addiscombe road, Croydon.

1882 Smith, Stephen Maberly, L.R.C.P. Ed., Yarra street, Geelong, Melbourne. [Per Henry M. Smith, Holly Lodge, Chillington, Kingsbridge, South Devon.]

1879 Smith, Wm. Hugh Montgomery, L.R.C.P. Ed., 24, London road, West Croydon, Surrey.

Elected

1876 Snell, Edmund George Carruthers, 102, Bonner road, Victoria park, N.E.

1882 Snell, George, L.R.C.P. Ed., Fort Canje, Berbice, B. Guiana.

1889 Solly, Ernest, M.B. Lond., F.R.C.S. Eng., 79, Lambeth Palace road, S.E.

1868 Spaull, Barnard E., 1, Stanwick road, West Kensington, W.

1888 Spencer, Herbert R., M.D., B.S. Lond., Assistant Obstetric Physician to University College Hospital; 10, Mansfield street, Cavendish square, W. *Council*, 1890. *Trans.* 1.

1876 Spencer, Lionel Dixon, M.D., Brigade-Surgeon, I.M.S., Bengal Establishment [care of Messrs. Grindlay and Co., 55, Parliament street].

1882 Spooner, Frederick Henry, M.D., Maitland Lodge, Clapton, N.E.

1876 Spurgin, Herbert Branwhite, 82, Abington street, Northampton.

1884 Stansby, Charles John, M.D., 10, Strand, Derby.

1886 Steavenson, William Edward, M.D. Cantab., M.R.C.P., 39, Welbeck street, W. *Trans.* 1.

1884 Stevenson, Edmond Sinclair, F.R.C.S. Ed., Strathallan House, Rondebosch, Cape of Good Hope.

1877 Stephenson, William, M.D., Professor of Midwifery, University of Aberdeen; 297, Union Street, Aberdeen. *Council*, 1881-3. *Vice-Pres.*, 1887-89. *Trans.* 2.

1873 Stewart, James, M.D., 2, Skinner street, Whitby, Yorkshire.

1875* Stewart, William, F.R.C.P. Ed., Dyrock Cottage, Prestwick, near Ayr, N.B.

1884 Stiven, Edward W. F., M.D., The Manor Lodge, Harrow.

1884 Stivens, Bertram H. Lyne, 11, Kensington gardens square, W.

1883 Stocks, Frederick, 421, Wandsworth road, S.W.

O.F. Stowers, Nowell, 166, Clapham road, S.W.

1866 Strange, William Heath, M.D., 2, Belsize avenue, Belsize park, N.W. *Council*, 1882-4.

Elected

1871 Sturges, Montague J., M.D., The Limes, Beckenham, Kent.

1884 Sunderland, Septimus, M.D., 155, Gloucester road, South Kensington, S.W.

1886 Sutcliffe, Arthur Edwin, 345, Stretford road, Manchester.

1883* Sutherland, Henry, M.A., M.D. Oxon., M.R.C.P., 6, Richmond terrace, Whitehall, S.W.

1862 Sutton, Field Flowers, M.D., Balham hill, Clapham, S.W.

1888 Sutton, John Bland, F.R.C.S., 48, Queen Anne street, Cavendish square, W. *Trans.* 1.

1859 Swayne, Joseph Griffiths, M.D., Physician-Accoucheur to the Bristol General Hospital; Harewood House, 74, Pembroke road, Clifton, Bristol. *Council*, 1860-61, *Vice-Pres.* 1862-64. *Trans.* 9. *Hon. Loc. Sec.*

1888* Sworn, Henry George, L.K.Q.C.P. & L.M., 16, Albion road, Holloway road, N.

1883 Tait, Edward Sabine, M.D., 54, Highbury park, N. *Trans.* 1.

1879 Tait, Edward W., 54, Highbury park, N. *Council*, 1886-7.

1871 Tait, Lawson, F.R.C.S., Surgeon to the Birmingham and Midland Hospital for Women; 7, The Crescent, Birmingham. *Trans.* 12.

1880 Takaki, Kanaheiro, F.R.C.S., 10, Nishi-Konyachō, Kiōbashika, Tokio, Japan. *Hon. Loc. Sec.*

1871 Tanner, John, M.D., F.L.S., Physician for Diseases of Women, to the Farringdon General Dispensary; 19, Queen Anne street, Cavendish square, W.

1859 Tapson, Alfred Joseph, M.B. Lond., 36, Gloucester gardens, Westbourne terrace, W. *Council*, 1862-64.

1863 Tapson, Joseph Alfred, Surgeon to the Clapham General Dispensary; Holmwood, The Grove, Clapham common, S.W. *Trans.* 1.

1871 Tayler, Francis T., B.A. Lond., M.B., Claremont villa, 224, Lewisham high road, S.E.

Elected

1869 Taylor, John, Earl's Colne, Halstead, Essex.

1871 Taylor, John W., M.D., D.Sc., Rothsay House, Prince of Wales terrace, Scarborough. *Hon. Loc. Sec.*

1885 Taylor, William Charles Everley, M.R.C.P. Edin., 34, Queen street, Scarborough.

1890 Thomas, Benjamin Wilfred, L.R.C.P. Lond., Welwyn.

1884 Thomas, George H. W., Orchard House, Teignmouth.

1887 Thomas, William Edmund, L.R.C.P. Ed., Bridgend, Glamorganshire.

1882 Thomas, Hugh, The Grange, Coventry road, Birmingham.

1890 Thompson, Charles Herbert, B.A., M.D. Dubl., 21, Half-moon street, Mayfair, W.

1867 Thompson, Joseph, L.R.C.P. Lond., 1, Oxford street, Nottingham. *Trans.* 1. *Hon. Loc. Sec.*

1878 Thomson, David, M.D., 37, Castle street, Luton, Bedfordshire.

1874 Thomson, William Sinclair, M.D., C.M., F.R.C.S. Ed., 1, Palace court, Notting hill gate, W.

1860 Thorne, George Leworthy, M.B., Cheriton Fitzpaine, Crediton.

1879 Thornton, J. Knowsley, M.B., C.M., Surgeon to the Samaritan Free Hospital for Women and Children, 22, Portman street, Portman square. *Council*, 1882-3. *Hon. Lib.* 1884-5. *Hon. Sec.* 1886. *Vice-Pres.* 1888. *Trans.* 6.

1874 Ticehurst, Augustus Rowland, Silchester House, Pevensey road, St. Leonard's-on-Sea.

1873 Ticehurst, Charles Sage, Petersfield, Hants.

1866 Tilley, Samuel, 6, Down street, Piccadilly, W.

O.F. Tilt, Edward John, M.D., Consulting Physician-Accoucheur to the Farringdon General Dispensary; 27, Seymour street, Portman square, W. *Council*, 1867-68. *Vice-Pres.* 1869-70. *Treas.* 1871-2. *Pres.* 1873-4. *Trans.* 7.

1883 Tinker, Frederick Howard, F.R.C.P. Ed., Talbot House, Hyde, Cheshire.

Elected

1887 Tinley, Thomas, M.D. Durh., Hildegard House, Whitby.

1879 Tivy, William James, F.R.C.S. Ed., 8, Lansdown place, Clifton, Bristol.

1872 Tolotschinoff, N., M.D., Charkoff, Russia.

1869 Tomkins, Charles P., L.K.Q.C.P.I., Old Manor House, Wallington.

1884 Travers, William, M.D., 2, Phillimore gardens, W.

1873 Trestrail, Henry Ernest, F.R.C.S. Ed., M.R.C.P. Ed., 36, Westbourne gardens, Glasgow, W. *Trans.* 1.

1886 Tuckett, Walter Reginald, West Kent General Hospital, Maidstone.

1865 Turner, John Sidney, Stanton House, 81, Anerley road, Upper Norwood.

1881 Tuthill, Phineas Barrett, M.D.

1861 Tweed, John James, Junr., F.R.C.S., 14, Upper Brook street, W.

1885 Underhill, Edgar T., M.B. Ed., Bromsgrove.

1874 Venn, Albert John, M.D., Obstetric Physician to the Metropolitan Free Hospital; 122, Harley street, W.

1873 Verley, Reginald Louis, F.R.C.P. Ed., 28B, Devonshire street, Portland place, W.

1879 Wade, George Herbert, Ivy Lodge, Chislehurst, Kent.

1860 Wales, Thomas Garneys, Downham Market, Norfolk.

1866 Walker, Thomas James, M.D., Surgeon to the General Infirmary, Peterborough; 33, Westgate, Peterborough. *Council*, 1878-80. *Hon. Loc. Sec.*

1889 Wallace, Abraham, M.D. Edin., 64, Harley street, W.

1870 Wallace, Frederick, 96, Cazenove road, Upper Clapton, N. *Council*, 1880-2.

1872* Wallace, John, M.D., Assistant-Physician to the Liverpool Lying-in Hospital; 1, Gambier terrace, Liverpool. *Hon. Loc. Sec. Council*, 1883-5.

1883 Wallace, Richard Unthank, M.B., Cravenhurst, Craven park, Stamford hill, N.

Elected

1879* WALTER, WILLIAM, M.A., M.D., Surgeon to St. Mary's Hospital, Manchester; 20, St. John street, Manchester.

1867* WALTERS, JAMES HOPKINS, Surgeon to the Royal Berkshire Hospital; 15, Friar street, Reading, Berks. *Council*, 1884-6. *Trans.* 1. *Hon. Loc. Sec.*

1873 WALTERS, JOHN, M.B., Church street, Reigate, Surrey.

1886 WARE, GEORGE STEPHEN, L.R.C.P. Lond., Middlesex Hospital, W.

1862 WATKINS, CHARLES STEWART, 16, King William street, Strand, W.C.

1887 WATSON, JOHN ADAM, L.R.C.P. & S. Ed., 39, Dennington park, West Hampstead, N.W.

1884 WATSON, PERCIVAL HUMBLE, L.R.C.P. Lond., 72, Jesmond road, Newcastle-on-Tyne.

1884 WAUGH, ALEXANDER, L.R.C.P. Lond., Midsomer-Norton, Bath.

1889 WAYTE, JOHN, M.A., M.B. Oxon., 98, North end, Croydon.

1867 WEBB, FRED. E., 113, Maida vale, W.

O.F. WEBB, HARRY SPEAKMAN, New place, Welwyn, Herts. *Council*, 1889-90.

1886 WEBBER, WILLIAM W., L.R.C.P. Ed., Crewkerne.

1884 WEDMORE, ERNEST, M.B. Cantab., Obstetric Physician to the Bristol Royal Infirmary; 11, Richmond Hill, Clifton.

1876 WEIR, ARCHIBALD, M.D., St. Mungho's, Great Malvern.

1867 WELLER, GEORGE, The Mall, Wanstead, Essex.

1887 WELLS, ALBERT PRIMROSE, M.A., L.R.C.P. & S., L.M., Bourneville, School road, Beckenham.

1876 WELLS, FRANK, M.D., Hawes street, Brookline, Massachusetts.

O.F. WELLS, SIR T. SPENCER, Bart., F.R.C.S., Surgeon in Ordinary to H.M.'s Household; Consulting Surgeon to the Samaritan Free Hospital for Women and Children; 3, Upper Grosvenor street, W. *Council*, 1859. *Vice-Pres.* 1868-70. *Trans.* 5. *Trustee.*

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1886 West, Charles J., L.R.C.P. Lond., Beaminster, Kempshott road, Streatham Common, S.W.

1888 Weston, Joseph Theophilus, L.K.Q.C.P. & L.M., Civil Surgeon, Northern Shan States, Lashio, *viâ* Mandalay, Burmah.

1886 Wharry, Robert, M.D. Aber., 6, Gordon square, W.C.

1876 Wharton, Henry Thornton, M.A. Oxford, 39, St. George's road, Kilburn, N.W.

1860 Wheeler, Daniel, Chelmsford.

1889 Whitcombe, Charles Henry, F.R.C.S. Edin., Westerham, Kent.

1890 White, Charles Percival, Queen Charlotte's Hospital, Marylebone road, N.W.

1882 Wholey, Thomas, M.B. Durh., Winchester House, 50, Old Broad street, E.C.

1883 Wicks, William Cairns, M.B., South View House, West parade, Newcastle-on-Tyne.

1887 Wigan, Charles Arthur, M.B. Durh., Portishead, Somerset.

1877 Wigmore, William, 130, Inverness terrace, Hyde park, W.

1883 Wilkinson, Thomas Marshall, F.R.C.S. Ed., Surgeon to the Lincoln County Hospital; 7, Lindum road, Lincoln.

1879 Willans, William Blundell, F.R.C.P. Ed., Much Hadham, Herts.

1879 Willett, Charles Verrall, 3, Southdown road, Shoreham, Sussex.

1889 Williams, Arthur Henry, M.A., M.B., B.C. Cantab., 79, London road, St. Leonard's-on-Sea.

1887 Williams, Charles Robert, M.B., C.M. Ed., 15, Ivanhoe terrace, Ashby-de-la-Zouch.

1872 Williams, John, M.D., F.R.C.P., Physician-Accoucheur to H.R.H. Princess Beatrice, Princess Henry of Battenberg; Professor of Midwifery in University College, London, and Obstetric Physician to University College Hospital; 63, Brook street, Grosvenor square, W. *Council*, 1875-76. *Hon. Sec.* 1877-9. *Vice-Pres.* 1880-2. *Board Exam. Midwives*, 1881-2; *Chairman*, 1884-6. *Pres.* 1887-8. *Trans.* 12.

Elected

1881 WILLIS, JULIAN, M.R.C.P. Ed., 64, Sutherland avenue, Maida vale, W.

1860 WILSON, ROBERT JAMES, F.R.C.P. Ed., 7, Warrior square, St. Leonard's-on-Sea, Sussex. *Hon. Loc. Sec. Vice-Pres.* 1878-80.

1886 WINTERBOTTOM, ARTHUR THOMAS, L.R.C.P. Ed., Lark hill, Swinton, Manchester.

1877 WINTLE, HENRY, M.B., Kingsdown, Church road, Forest hill, S.E.

1887 WITHERS, ROBERT, Lawrence, Otago, New Zealand.

1880 WOODWARD, G. P. M., M.D., 167, Macquarie street, Sydney, New South Wales.

1890 WORNUM, GEORGE PORTER, 6, College terrace, Belsize park, N.W.

O.F. WORSHIP, J. LUCAS, Manor House, Riverhead, Sevenoaks, Kent. *Council*, 1875-77. *Vice-Pres.* 1883-5. *Trans.* 3.

1881 WORTHINGTON, GEORGE FINCH JENNINGS, M.K.Q.C.P., Highden, Sidcup.

1876 WORTS, EDWIN, 6, Trinity street, Colchester.

1887 WRIGHT, CHARLES JAMES, Surgeon to the Hospital for Women and Children, Leeds; Professor of Midwifery to the Yorkshire College; Lynton Villa, Virginia road, Leeds.

1888* WYATT-SMITH, FRANK, M.B., B.C.Cantab., British Hospital, Buenos Ayres.

1889 WYNTER, ANDREW ELLIS, L.R.C.P. Lond., 30, Upper Berkeley street, Portman square, W.

1871 YARROW, GEORGE EUGENE, M.D., Oakley House, 317, City road, E.C. *Council*, 1881-3.

1885 YOUNG, ADAM, L.R.C.P.Lond., 34, High street, Sevenoaks.

1882* YOUNG, CHARLES GROVE, M.D., New Amsterdam, Berbice, British Guiana.

1861 YOUNG, WILLIAM BUTLER, 10, Castle street, Reading.

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OBSTETRICAL SOCIETY

OF

LONDON.

SESSION 1889.

JANUARY 2ND, 1889.

JOHN WILLIAMS, M.D., President, in the Chair.

Present—30 Fellows and 1 Visitor.

Books were presented by Dr. Auvard, Dr. B. S. Schultze, Dr. W. Japp Sinclair, and the Westminster Hospital Staff.

John Mackern, B.A., M.B.Cantab., was admitted a Fellow of the Society.

The following gentlemen were elected Fellows of the Society:—William James Best, M.R.C.S. (Dover); Edward Thomas Crouch, M.R.C.S. (Gosport); Arthur Graham, L.R.C.P. & S.Ed.; Ernest Solly, M.B.Lond., F.R.C.S.Eng.; and Andrew Ellis Wynter, L.R.C.P.

The following gentlemen were proposed for election:—William Henry B. Brook, M.B.Lond. (Lincoln); Arthur Henry Weiss Clemow, M.D., C.M.Edin.; William Edward Dawson, L.K.Q.C.P. and L.M.; Henry Willingham Gell,

M.A., M.B.Oxon.; Charles D. B. Hale, L.R.C.P.Lond.; Charles Beyer Humphrys, L.R.C.P. & S.Edin. (Bournemouth); Robert Reid Rentoul, M.D. Qu. Univ. Ireld. (Liverpool); and Leonard Remfry, L.R.C.P.Lond.

A UTERUS THE SUBJECT OF SARCOMA REMOVED BY HYSTERECTOMY.

By William Duncan, M.D.

He also showed microscopical sections of the same, which proved it to be a mixed small-cell sarcoma.

AN ACEPHALOUS ACARDIAC MONSTER FROM THE MUSEUM OF ST. BARTHOLOMEW'S HOSPITAL (No. 3435a).

Shown by W. S. A. Griffith, M.B.

CASE OF MYLACEPHALOUS ACARDIAC TWIN.

By H. Ernest Trestrail, M.R.C.P., F.R.C.S., Aldershot.

On November 5th, 1888, at 9 a.m., I was called to see the second wife of a sergeant-major in the Royal Engineers (his first wife having died in her confinement), and was informed that she had just completed the sixth month of her first pregnancy, and had regular pains since 3 a.m., which came on during her sleep, and for which she could not account by anything she had done.

Upon examination, I found the feet presenting, the toes pointing backwards. I ruptured the membranes, and de-

livered her of a living female child, perfectly formed, which survived its birth about half an hour.

The uterus contracted well, but as it appeared to me somewhat larger than if it simply contained the placenta, I made a vaginal examination, and found a rounded body presenting, not unlike a fat shoulder. Upon following this up I came to a cross cut (see part representing head), and was at once convinced, as the body was freely moveable, that I had to do with a monster. I proceeded, therefore, to extract it at once. The placenta followed very shortly. I kept up continuous pressure on the uterus, and there was no hæmorrhage. There was only one placenta. The cord of the monster was connected with that of the child, there being only one insertion.

The patient made a rapid recovery. Her age is twenty-six years. She had been married eleven months. She was certainly somewhat larger than is usual at six months. The labour lasted seven hours. Her husband says that she was frightened by a parrot about the end of May.

His first wife was nineteen when she married. Her first child was born dead. She was confined a second time in North America, and died on the tenth day of "inflammation of the womb." A midwife of little experience attended her, a doctor only seeing her shortly before her death. The only symptoms the husband remembers are that she had great abdominal pain, sickness, and was delirious for the last day or two. The child was perfect, and lived nine months.

DISSECTION OF MR. TRESTRAIL'S CASE OF MYLACEPHALOUS ACARDIAC TWIN, WITH NOTES ON ACARDIAC MONSTERS IN THE MUSEUMS OF LONDON HOSPITALS.

By Alban Doran.

Mr. Trestrail's specimen weighed thirteen ounces when fresh. In long diameter it measured five inches and a half. Its form is indicated in the annexed sketch, which I made before dissection. The surface was of a dull pink colour, like an infant's skin. By the aid of the lens I detected short, fine hairs, especially towards each extremity. There was no trace of a hairy scalp, such as has been seen in otherwise acephalous acardiacs. I cut a small square piece out of the œdematous integument, and allowed the specimen to soak for six days in equal parts of methylated spirit and water. Sections were made of the square piece of integument.

Owing to the extreme nature of the arrest of development, the dissection proved difficult, as I feared throughout that I might accidentally cut into some important structure. I have to thank Prof. C. Stewart and Mr. F. S. Eve for advice and assistance. I made a vertical incision along the side of the fœtus where the umbilicus lay. The incision was prolonged upwards, avoiding the umbilicus and the fleshy wattle (Fig 1, *Wat.*) and curved round towards the site of the head. Then it was prolonged downwards towards the foot. The integuments were then reflected; the subcutaneous tissue was very thick. The action of spirit has made it look much thinner.

Close behind the umbilicus I came on a mass of dense granular fat, and on dissecting through it I found a large solitary kidney. This organ bore hardly any indications of lobulation. Immediately in front of that organ was a

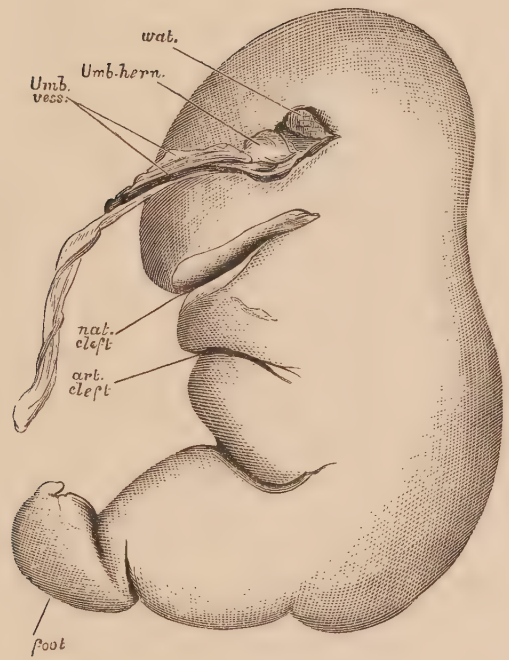

FIG. 1.—ACARDIACUS MYLACEPHALUS. Sketched before dissection. *Umb. vess.* The two vessels (one artery and one vein) in the cord. *Umb. hern.* Hernial pouch at attachment of cord (it contained the greater part of the large intestine). *Wat.* Fleshy wattle, nature uncertain. *Nat. cleft* (see Fig. 3). Deep cleft in which external genitals and cloaca lay concealed. *Art. cleft.* Superficial or artificial cleft, disappearing on extension of parts.

membranous pouch ; this I opened, it proved to be peritoneum and contained intestine. The kidney lay in the hollow of a curved cartilaginous body, which ended anteriorly in a pointed extremity a little above and in front of the umbilicus. Below the kidney the cartilage was prolonged forwards as a nodular mass, bearing in front of it ; immediately below the peritoneal pouch, a cartilaginous bar, which was united to the nodule by a distinct articulation (Fig. 2, *Cart. artic.*). A moveable articulation connected the main cartilage with a long cartilage which proved to be the femur. The fascia lata was conspicuous, the muscles very pale, and the anterior crural nerve distinct ; a large vessel accompanied it.

On parting the edges of the deep natural cleft (Fig. 1) I discovered a small fleshy elevation. One eighth of an inch below it was a circular opening, into which a stout bristle could be passed for nearly three quarters of an inch, entering the rectum. The elevation was a clitoris and prepuce (as the other twin was female, it may be concluded that this monster was of the same sex). A deep groove ran between the clitoris and the opening. Half an inch behind the opening a firm point, a process of the main cartilage, could be felt beneath the integument, and appeared to represent the coccyx. The half-inch tract may be considered as analogous to the perineum, not homologous, since the rectum opened in front of it, not behind (see Fig. 3).

I dissected up the kidney, and found behind it large nerves issuing from the main cartilage and uniting to form the great sciatic. A large vessel ran from the hilum to the umbilicus. This vessel sent a few small branches towards the main cartilage, backwards and downwards ; it was the sole trunk-vessel in the whole subject. A single narrow duct ran from the hilum of the kidney, and was lost in the integuments behind the genital groove. It was evidently the ureter.

The intestines consisted of the entire large intestine with a well-formed mesentery. The greater part was in the

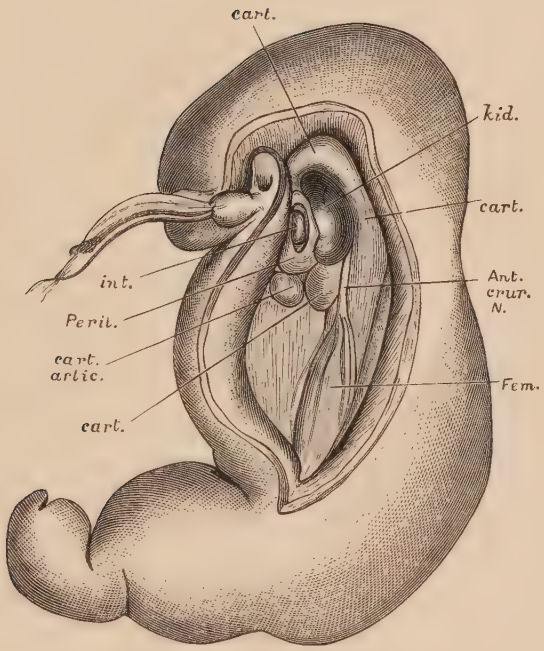

FIG. 2.—ACARDIACUS MYLACEPHALUS. Sketched after the reflexion of the integuments. *Cart.* Cartilaginous structures. *Cart. artic.* Cartilage apparently united by a moveable joint to those structures. *Fem.* Femur, also articulated to *cart.* *Kid.* Kidney. *Perit.* Peritoneum, with an incision exposing *int.*, intestine. *Ant. crur. N.* Anterior crural nerve.

hernial sac (Fig. 1, *Umb. hern.*). The cæcum and vermiform appendix were conspicuous, a short piece of small intestine was traced from the cæcum, it was lost in the wall of the hernial sac. The rectum passed under the peritoneum in a fossa in the main cartilage, and opened at the cloaca (Fig. 3, *Clo.*).

After the exposed parts had become toughened in spirit I directed Mr. Pearson, the professional dissector at the College, to expose and clear the skeleton of the solitary lower extremity. I then dissected the curved cartilaginous body behind and above the kidney, and the nodule below it. The appearances are indicated in Fig. 4.

Two bodies of lumbar vertebræ, with large interarticular cartilages, were exposed. The anterior crural nerve rose from between them on the left side. On the right side of the upper vertebra was a distorted transverse process turning upwards and resembling a rib. The sacrum was large; the left great sciatic nerve arose, in the usual manner, from branches passing out from between its foramina. The sharp point behind the cloaca (Fig. 3, *Coc.*) was evidently the coccyx; it lay immediately below the sacrum. The right side of the pelvis was represented by a piece of cartilage an eighth of an inch long, and curved downwards at the end, evidently the crest and upper part of the ilium. The left side of the pelvis was well developed. The crest of the ilium was high. The nodular mass below the kidney (Fig. 2) proved to be the ischium, the articulated cartilage in front of it was the os pubis, the three elements of the innominate bone being, of course, quite distinct from each other. The obturator foramen was well marked. The femur was two and a quarter inches long. The patella could be felt in the quadriceps tendon. The tibia was an inch and three quarters long, the shaft was straight. The fibula was well formed, the external malleolus large. The tendo Achillis was stout. There were four toes; the great toe was well developed, but rather short. Two other toes were long, with distinct articulations. The fourth lay between them, it was

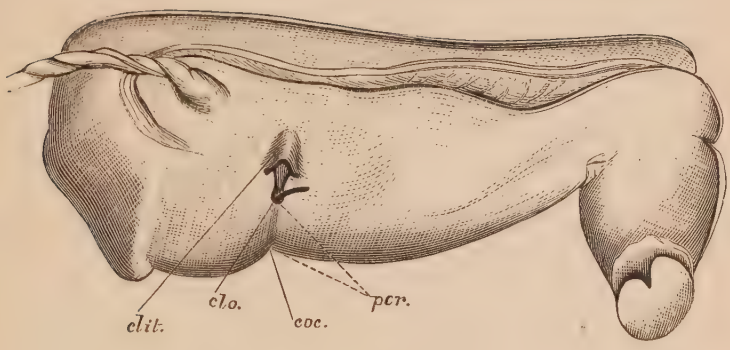

FIG. 3.—ACARDIACUS MYLACEPHALUS. Lateral view, with the cleft (Fig. 1, *nat. cleft*) left open. *Clit.* Clitoris. *Clo.* Cloaca, with bristle. *Coc.* Coccyx. *Per.* False perineum. The long incision, made for inflecting the integuments, is indicated.

thin and ill developed. Extreme talipes equino-varus existed.

The gap between the left os pubis and the point of the rudimentary right innominate bone was filled up by the rectum, which was enclosed in a fairly developed muscular sheath, partly consisting of the levatores ani. The rectum passed first through the imperfect pelvic brim in front of the sacrum and behind the kidney. The single ureter lay in the rectum, and was lost in the integuments behind the cloaca where the rectum opened. The kidney lay in the hollow between the ilium and the lumbar vertebræ and sacrum.

From the direction of the rudimentary right innominate bone (Fig. 4, *r. p.*), the blunt-pointed upper extremity of the fœtus, overhanging the genital cleft (Fig. 1, *Nat. cleft*), must represent not the site of the head and thorax but the rudiments of the left lower extremity.

Thus this acardiacus consisted of the left lower extremity and left side of pelvis, the sacrum and coccyx, large intestine pervious to its outlet at the cloaca, and left kidney, all complete. The lower lumbar vertebræ, right side of pelvis, and small intestines were rudimentary, the ureter ended in the integument, the clitoris overhung a cloaca. The right kidney, the suprarenal capsules, bladder, uterus, ovaries, upper abdominal viscera, upper lumbar vertebræ, dorsal and cervical vertebræ, upper extremities, and the thorax and its contents, with the cranium and its contents, were absolutely wanting. A blunt point of flesh represented the right lower extremity.

I have classified this monster under St. Hilaire's subclass "mylacephalus," which lies between "amorphus" and "acephalus." As the left leg was well formed it could not be called "amorphus." On the other hand, "acephalus" is generally understood to imply acardiacs where both legs are fairly formed, or, at least, sireniform, the pelvic and lower abdominal viscera being fairly developed. Mylacephalus implies that the head, or more or

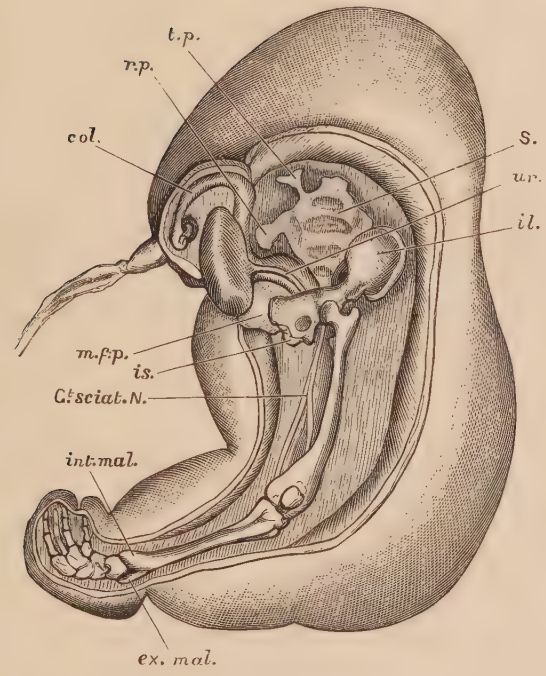

FIG. 4.—ACARDIACUS MYLACEPHALUS. The dissection commenced in Fig. 2 is here complete. *S.* Sacrum, with two lumbar vertebræ. *tp.* Malformed transverse process of a lumbar vertebra. *r.p.* Rudimentary right side of pelvis. *il.* Ilium. *is.* Ischium with os pubis above it. The femur, patella, tibia, and fibula are displayed. *ex. mal.* External malleolus. *int. mal.* Internal malleolus. *col.* Colon, lying on reflected flap of skin which includes insertion of umbilical cord. The cæcum and vermiform appendix lie over the hernial pouch. *ur.* Ureter, lying on rectum, which curves downwards, and lies covered in *m.f.p.* Muscular floor of pelvis, on its way to cloaca (Fig. 3, *Clo.*).

less of the thoracic, abdominal, or pelvic viscera, are badly developed or entirely absent. The amorphous type, in fact, prevails, as in this case.

I have managed to get two good sections of the œdematous integument of the acardiacus prepared, and I exhibit them this evening. The true epidermis is thin. A layer of long fusiform cells beneath it seems to represent the muscularis mucosæ. The hair-follicles are ill developed. The thick layer of subcutaneous tissue is condensed close to the epidermis, thus accounting for the toughness of the skin in this case. It is very loose in its deeper part. It contains a great quantity of elastic fibres. The connective-tissue cells are very large and oval, with big nuclei. In no part do I detect any tissue such as is seen in a true myxoma. The structure in this case is essentially embryonic, with somewhat atrophic epidermis. In this, as in all other cases of acardiacus preserved in museums, the action of spirit has caused the œdematous integument to shrivel up, spoiling its original appearance.

Acardiacs are relatively rare. Förster ('Die Missbildungen des Menschen,' 1861) states that they formed 18 per cent. of his collected cases. There are good grounds for believing that they are frequently overlooked through being taken for "fleshy moles" or "false conceptions." Dr. A. Russel Simpson once ordered a suspected case to be disinterred ("The Acardiac Fœtus," 'Trans. Edin. Obstet. Soc.,' iv, 384. Contributions to 'Obstetrics and Gynæcology,' 1880, p. 23). It proved to be what he expected, but many other cases must have been thrown away. Some writers confound this form of monstrosity with anencephalus, a totally different condition, where the cranial vault remains open and the brain is more or less deficient.

Anencephalus is common, and cannot escape the notice of the midwife or obstetrician, as the aspect of the face is peculiarly hideous, and the body often large. A monster born without any limbs (amelus), or with arms but no legs (apus), must not be mistaken for the very rare acar-

diacus acormus. In amelus the pelvic and abdominal viscera may be more or less deficient, but the head and neck are well formed, and the umbilical cord is present. Acormus, on the other hand, consists of an imperfectly developed head with a small amorphous bag of flesh ; the cord is absent.

The distinguishing feature of the acardiacus, according to Ahlfeld (' Die Missbildungen des Menschen,' 1880), is that it is connected, either through its umbilical cord or its umbilical vessels, with the cord of a strong, generally well-formed embryo, the heart of which carries on the circulation in the acardiacus. It should therefore be more correctly termed an allantois-parasite or placenta-parasite. A rudimentary heart, atrophied through changes in the circulation, is found in some cases.

Circumstantial evidence strongly confirms the prevalent theory which explains the development of an acardiacus. This monster is invariably a true twin, that is, an embryo developed from the same ovum as its brother. In such cases the sexes of the twins are said by authorities on the subject to be invariably identical.* I find, however, that Dr. W. H. Dickinson ("Description of a Fœtus born without Heart, Brain, Lungs, or Liver," 'Med.-Chir. Trans.,' vol. xlvi, 1863, p. 141) notes a case, of which more will presently be said, where a healthy female infant was born, the acardiacus being a male. Sir Astley Cooper was one of the first to detect an inversion of the circulation in the acardiacus, its umbilical artery being a branch of the same artery in the brother. Claudius and Ahlfeld have further investigated this theory. When in one-yelk twins the allantois of each brother reaches the chorion, a

* See Kleinwächter's valuable work on the physiology, teratology, and obstetrics of twins ('Die Lehre von den Zwillingen,' Prague, 1871). "In all those cases," he writes, "where the chorion is single, whether the amnion be single or double, the embryos are of the same sex." Arneth claims one exception. Meckel von Hemsbach believes that contrary assertions are based on error or illusory appearances; Hunter also noting that in twin calves developed from one yelk it not rarely happens that both are males, but that in one the genitals are imperfectly developed.

common placenta is formed, with the two cords inserted far apart. Each twin has then an equal chance of development. When the allantois of one embryo grows faster than its brother's, the former allantois may more or less completely monopolise the chorion. The losing allantois can then only insert itself into the gaining allantois. The vessels in each allantois are brought into communication with each other. The umbilical cord of the twin whose allantois reaches the chorion develops well. The cord of the other twin fails to develop thoroughly, and forms a mere branch of the perfect cord. As its vessels anastomose with those of the perfect cord, the fœtus to which it is attached can only receive blood from its brother. The heart of the brother with the perfect cord propels blood into the vessels of the other twin, which is destined to become an acardiacus. The current goes backwards through the umbilical arteries, up the primitive aortæ to the rudimentary heart. That organ cannot develop, and, owing to the abnormal course of the circulation, only the lower parts of the body have much chance of development in the commoner varieties of acardiacus. When the cord of the acephalus is inserted partially on the placenta or into its brother's cord very near the placental attachment of the latter, the monster will be fairly developed. The nearer the attachment of the cord lies to the fœtal insertion of the normal twin's cord the more imperfect will be the acardiacus. In very rare instances there is no cord to the acardiac twin, its allantois having been so much intercepted that the embryo only touches its brother by its membranes. Circulation is then established through the membranes, and only those parts which lie above the heart can develop. Then the monster becomes an acormus, an imperfect head without a trunk.

The circumstantial evidence in favour of the above theory, lucidly demonstrated with the aid of diagrams by Ahlfeld in his work already quoted, is strong. The parasitic nature of the cord of the acardiacus, a mere branch of its brother's cord, has repeatedly been observed. It

existed in Mr. Trestrail's case. The inversion of circulation has been satisfactorily demonstrated. Hypertrophy of the heart of the well-developed fœtus has been noted. This condition was observed in a case described by H. Meckel, where there was a third twin in a separate ovum. The subject of close insertion of twins' cords into the common placenta, and its effects on development, is ably treated by Schatz.*

The inversion of the blood-current greatly affects the venous circulation in the acardiacus ; hence much stasis and consequent hypertrophy and œdema of the connective tissue. Cavities form in that tissue, and sometimes convert the monster into a shapeless mass. Acardiacs are rarely born in first labours (Geoffroy St. Hilaire) ; but the mothers in Mr. Trestrail's case, and another in St. George's Hospital, were primiparæ. The perfect twin is generally born first. The liquor amnii is usually abundant.†

Only two undoubted cases of acardiacus have been shown before the Obstetrical Society (Dr. Schofield, vol. xxi, Mr. F. Cookell, junr., vol. xxv). The nature of Dr. Gervis's "rare form of monstrosity" in a twin (vol. x) is not described. The "acephali," vol. viii, p. 316, and vol. xvi, p. 140, were anencephalous monsters. Dr. Lusk, in his well-known text-book, and Dr. A. R. Simpson (loc. cit.), figure the most frequent form of acardiacus. Rarer forms are given in Förster and Ahlfeld's works.

Before describing specimens of acardiacus, I will briefly explain the classification of its varieties. I feel bound to reject allied forms of monstrosity, included by Ahlfeld, such as epignathus (acardiac attached to the oral cavity

* "Die Gefässverbindungen der Placentakreislaüfe eineiiger Zwillinge," 'Arch. f. Gynäkologie,' vol. xxiv, p. 337, and vol. xxix, p. 419. This monograph is illustrated by fine coloured drawings of placentæ.

† Mr. Trestrail's patient was "certainly somewhat larger than is usual at six months." See Schatz, "Ein besondere Art von Polyhydramnie mit anderseitiger Oligohydramnie bei eineiigen Zwillingen," 'Arch. f. Gynäk.,' vol. xix, p. 329. The influence of the relative amount of liquor amnii on the weight of organs is very marked in his tables. See also Küstner, "Ueber Hydramnion bei eineiiger Zwillingen," ib., vol. xxi, p. 1.

of the brother, a more extreme condition than that already noted as explaining acormus. A cord may exist, running into the brother's cranium). Otherwise it would be hard to put aside some still more divergent types, as congenital sacral tumour and parasitic fœtus.

The varieties of acardiacus proper are:

Amorphus or Anideus.

Mylacephalus.

Acormus.

Acephalus (var. *sympus, monopus, dipus, monobrachius, dibrachius*).

Anceps, or Paracephalus.

Acardiacus Amorphus.—This variety forms a shapeless mass covered with skin; sometimes a tract of hairy scalp is seen. The subcutaneous tissue is very œdematous, with cystic cavities. Rudiments of the pelvis and adjacent bones may exist, with a few coils of intestine, blind at each end. The heart is never present. The cord is short, and never bears more than two vessels, one artery and one vein; in some cases it is absent, the vessels running from the brother through the membranes, as in acormus. I can find no genuine amorphus in any London museum. Sir W. Turner informs me that an amorphous sheep is preserved in the Museum of Edinburgh University. It forms "a rounded mass covered with wool, quite amorphous, but with an umbilical cord."

A. Mylacephalus.—Ahlfeld has discarded this variety, I think without sufficient reason. It conveniently includes all cases where the head is an amorphous or very rudimentary process or even absent, one or both lower extremities present or very rudimentary, the subcutaneous tissues markedly œdematous, and the cord with two vessels as in amorphus. The specimen 241-2 in the College of Surgeons is a true mylacephalus. I have explained why I classify Mr. Trestrail's case under the same head. It is now in the College Museum (240A, Terat. ser.).

A. Acormus.—This variety should only include acardiacs

chiefly consisting of an ill-formed head, directly connected with the membranes and devoid of any umbilical cord. Its physiology has been already explained. It is exceedingly rare, no specimen exists in any London Museum.*

A. Acephalus.—This is the commonest variety of acardiacus. All parts around and below the pelvis are more or less distinctly developed,† and there may be a thorax, always fissured in front, and even an imperfect heart. The cord has two arteries and one vein, or one artery formed by the junction of two distinct arteries at the umbilicus. Acephalus generally appears as a ball of flesh with two legs. The thighs are usually more œdematous at the groin than at the knee, so that the limbs appear as though dressed in the trunk-hose worn in the reign of James I. Umbilical hernia is very common in this variety. Mr. Trestrail's case might be classified by some authorities under a sub-variety, acephalus monopus; but the rudimentary condition of the viscera and the vascular supply of the cord refer it (and most cases of monopus similarly undeveloped) to mylacephalus.

* In reply to a letter of inquiry concerning specimens of acardiacus in Edinburgh University, Sir W. Turner described one example in that collection as follows:—"Head well developed; neck present; trunk about size of a small orange; no trace of extremities. Specimen not dissected." To fresh inquiries for more minute particulars, the same anatomist very kindly wrote as follows:—"The specimen is the nearest approach to a trunkless fœtus in the human subject that we possess. The limbs show no trace of their presence on a surface view, but, as I stated in my former letter, the specimen is not dissected, so that I cannot say if some rudiments may or may not be present subjacent to the skin. For the same reason, I cannot say whether the heart is there. It cannot be said to be without a trunk, for as much is present as is equal in size to a small orange. The head, neck, and trunk somewhat resemble fig. 597 in Vrolik's article, "Teratology," in Todd's 'Cyclopædia,' only the upper limbs are absent. I see no trace of an umbilical cord. The specimen is without history." I hope to have an opportunity of examining this specimen. In some respects it appears to be an amelus (see p. 12) rather than an acardiacus acormus. Vrolik's case, to which Sir William Turner refers, was an apus, with a very long cord twisted round its neck.

† The liver is generally absent. This defect of development has not been satisfactorily explained. Strange to say, as Dr. W. S. A. Griffith has pointed out, meconium may be found in the bowels where no liver exists.

Ten specimens of acephalus proper in the human fœtus* are to be found (1888) in London museums. [Royal College of Surgeons' Museum, 238, 239, and 240 (the last two being sections of one specimen). St. Bartholomew's Hospital, 3435 and an unmounted specimen. St. Thomas's Hospital, LL 21, LL 21[1]. St. George's Hospital, 17 D and 23 B. Guy's Hospital, 2539[35]. London Hospital, O 79.]

Acardiacus Anceps.—This variety includes acardiacs with more or less perfect trunk and extremities, and with a distinct trace of a head. Ahlfeld asserts that the heart is always present, and that as columnæ carneæ are found there must be a double circulation, from the acardiac's rudimentary heart and from the perfect heart of the brother. An anceps is to be seen at St. George's Hospital (23 A), but it has no heart (Fig. 7), Acardiacus anceps (or paracephalus) must be distinguished from perocephalus, where the trunk and limbs may be perfect, whilst the head is reduced to a pair of ears or a trace of cranium with a few facial bones. The heart is perfect, and the monster is not necessarily a twin. True perocephalus is almost, if not entirely, confined to the lower animals. See Gurlt, 'Missbildungen der Thieren.'

I will now give a short description of each of the specimens of acardiacus in London museums. I must here express my thanks to the curators and other gentlemen for kind assistance in finding the specimens, and for granting me permission in some cases to draw them. In every case I have inspected the specimens myself. Altogether thirteen human acardiacs are to be found in London. None are as yet at hand in the museums of Charing Cross, Middlesex, St. Mary's, and Westminster Hospitals, nor in University and King's Colleges.

Acardiacus Mylacephalus. (Museum of the Royal College of Surgeons).—Firstly, Mr. Trestrail's case, also No. 241–2, Teratological Series. Mr. B. T. Lowne has de-

* Of specimens from the lower animals I find:—Mylacephalus, R. C. S., 243-4 (calf); acephalus, R. C. S., 245-6 (lamb); St. George's Hospital, 17 E (cat).

scribed this case very fully in his catalogue of the series. It forms a large elongate, ovate mass, with a hairy scalp and distinct occipital bone, and a spinal column, the spines of which form a long continuous rod of cartilage, a primitive condition highly developed. (Fig. 5.) Tympanic cavities exist; the thorax is filled with areolar tissue. A pharynx, pervious œsophagus, stomach blind at the pylorus, a quarter of an inch of small intestine blind at both ends and entirely unconnected with the stomach, a large intestine pervious at the anus, horseshoe kidney, Wolffian bodies and bladder, aorta, pneumogastrics and sympathetic ganglia exist, also an imperfect left lower extremity (242). The development and size of the Wolffian body is very remarkable. The sex is not indicated. The other twin was well formed. This specimen, which is mounted in two sections, is deserving of more study. Why so much is developed, and at the same time so much undeveloped, in every region of the subject, it would be interesting to discover. The development of an acormus or an acephalus is far easier to understand.

Acardiacus Acephalus. (Museum of the Royal College of Surgeons.—No. 238,* Terat. Ser., is a male fœtus with an œdematous trunk and rudimentary left arm; the other extremities are better formed. The spine has been exposed behind; it has a single curve with its convexity backwards, and consists almost entirely of cartilage. The cord is displayed. The body has been distorted by bad mounting.

239–40. A well-dissected specimen in two sections, organs of generation too imperfect to denote the sex. The right arm is ill-developed and ends in a single nail, the leg bears three toes; there is a left leg but no left arm.

* It is not stated in the catalogue that this specimen and 239-40 were developed in twin pregnancies; but that kind of gestation is implied in Mr. Lowne's general observations on amorphous fœtus (p. 59). Again, in the description of some of the cases in the catalogues of other museums, nothing is said about twins, but only in cases where there is no history of any kind.

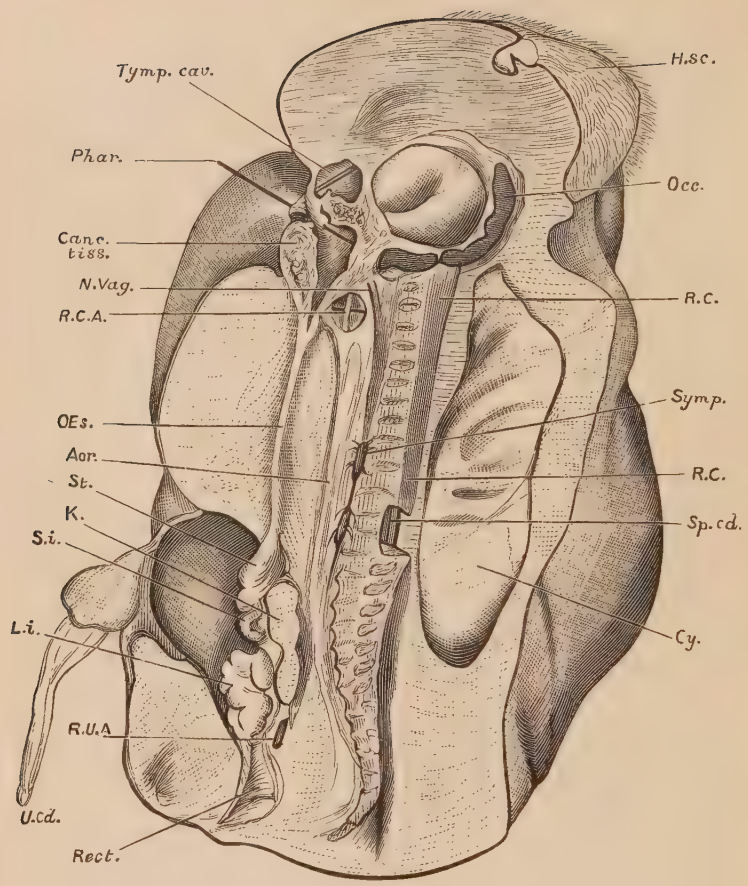

FIG. 5.—ACARDIAC TWIN (true MYLACEPHALUS). *Mus. R. C. S.*, Teratol. Ser., No. 241. Right half. *H. sc.* Hairy Scalp. *Occ.* Occipital bone. *Tymp. cav.* Tympanic cavity, containing a glass rod. *Phar.* Bristle passing into pharynx. Below and above pharynx is cancellous tissue (*canc. tiss.*), probably representing the jaws. *R. C.* Rod of cartilage representing the spinous processes of the vertebræ, "probably the remains of the unsegmented investing mass highly developed" (*Lowne*). *Sp. cd.* Cord in portion of spinal canal exposed by dissection. *R. C. A.* Right carotid artery. *R. U. A.* Glass rod passed into right umbilical artery. *Œs.* Œsophagus. *Aor.* Aorta. *N. Vag.* Right pneumogastric nerve. *Symp.* Ganglion of sympathetic. *St.* Stomach. *S. i.* Small intestine. *L. i.* Large intestine. *Rect.* Rectum. *K.* Kidney. The Wolffian body and duct lie hidden behind the intestines, which bulge into the peritoneal cavity. *U. cd.* Umbilical cord; a thin-walled pedunculated cyst lies in front of its insertion. *Cy.* Cystic cavities in œdematous tissue.

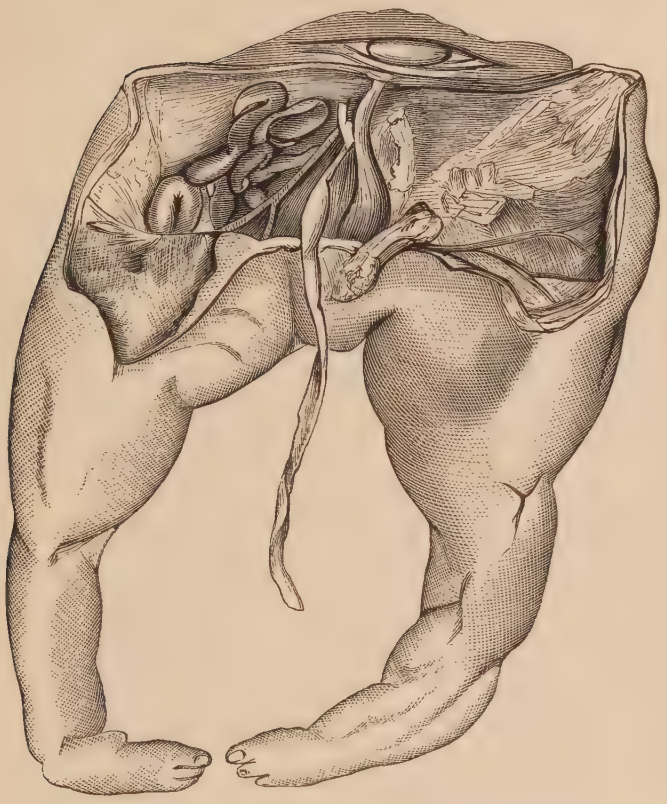

FIG. 6.—ACARDIACUS ACEPHALUS. *Mus. St. Barthol. Hosp.*, Path. Ser., No. 3435. The rudimentary trunk has been laid open and roughly dissected, exposing coils of intestine and the hypogastric artery on the right side; on the left nothing is seen except a vessel, and muscles cut across in an irregular manner. The relation of the umbilical cord to the structures in the abdominal cavity is indistinct. The penis and scrotum are flattened and pushed to the left. The lower extremities are almost equally developed, the feet much deformed. This specimen is a good example of the most frequent form of acardiac twin.

The thoracic and abdominal cavities are not separated by a diaphragm. The acardiac possesses a horseshoe kidney with two ureters, and a bladder. The intestine commences as a blind sac in the cord and terminates in an impervious rectum. There is no liver, and the lungs seem to be represented (according to Mr. Lowne) by a dense mass of connective tissue. There are twenty-two segments to the vertebral column, and a cord. The pelvis is fairly developed. The head is represented by a knobbed proboscis.

St. Bartholomew's Hospital Museum, 3435. "An acephalous human monster. There is no trace of any attempt at the formation of a head or upper extremities. The lower extremities are large and malformed, and a small portion of intestine may be seen in the abdominal cavity. Presented by Dr. Matthews Duncan." (Male, penis and scrotum well developed. Long "trunk-hosed" lower extremities see p. 17), double varus, defective toes. (Fig. 6.)

Unmounted specimen.—Large acephalous fœtus. "Trunk-hosed" lower extremities. Feet fairly formed. Left upper extremity phocomelous, being represented by a left hand with defective fingers, mounted on a short fleshy pedicle. Certain fleshy wattles may indicate right arm; vertebræ and ribs present; thick œdematous tissue replaces head. Vulvar aperture distinct. (I understand that Dr. W. S. A. Griffith intends to exhibit this specimen (3435A) before the Society, v. supra, p. 2).

St. Thomas's Hospital Museum, LL 21. "A monster consisting of the lower half of the body" (good description follows). Both lower extremities fairly developed, double varus, toes imperfect on right foot. Vertebræ, spinal cord, and some ribs present. Cyst in back; it had no connection with the spinal canal, and evidently resulted from œdema (see p. 15). External (male) organs well formed. No arms, no trace of head.

LL 21[1]. Large undissected acephalous monster, apparently female. "Trunk-hose" appearance very marked, legs tapering to ankle. Double varus, three toes to feet. Trunk very œdematous, almost spherical; no trace of head

or arms. Umbilicus central and symmetrical, double hernial protrusion.

St. George's Hospital Museum, 17 D. Legs and feet large, arms fairly developed. *Male* external organs well formed. A tubercle indicates the head.* Presented by Dr. Blakeley Brown. This is the case where the normal twin was a *female*, described by Dr. Dickinson (see p. 13). The patient, as in Mr. Trestrail's case, was a primipara; this is unusual in cases of acardiacus.

As it is contrary to all experience that the amorphus should be of a different sex to the normal twin, I have recently written to Dr. Dickinson, who has very kindly taken great pains to recall the facts of the case. In the original paper in the forty-sixth volume of the 'Medico-Chirurgical Transactions' occur the following sentences relative to the disparity of sex:

P. 141. "The being, like all others of the same character, was a twin. The mother, an unmarried woman pregnant for the first time, was delivered in Queen Charlotte's Hospital. A healthy female infant was first born, the breech presenting." . . . After some words about the monster, the author continues, "The female child was apparently in good health." Thus the sex of the normal twin was dwelt upon. At page 142, in referring to the monster, Dr. Dickinson states: "The genital organs, which were those of a male . . . . were natural."

Dr. Dickinson wrote to me, December 15th, 1888: "The fœtus in question was brought to the museum by the late Dr. Blakeley Brown, who, being dead, cannot be appealed to. He was a very accurate man, and I took down the particulars from his lips, and I should have no

* "On its (the trunk's) front surface, in the median line, at a short distance from the upper end, was a small prominence of a reddish colour, which, from the fact of its being clothed with papillæ, was believed to represent the tongue."—Dr. Dickinson, loc. cit. The opinion that the "tubercle" represents the head seems to have been derived from the author of the catalogue. Perhaps the "tubercle" has been once more examined since Dr. Dickinson's paper was written. It is quite unlike the soft round mass representing the head in the specimen of acardiacus anceps, 23 A, in the same museum.

doubt they could be relied on." The register for 1862—1863 at Queen Charlotte's Hospital only mentions the fact of twin labour, without any comment. Dr. Dickinson's evidence, however, is strongly in favour of disparity of sex, for he twice employs the word female in reference to the normal twin, and he notes the fact that the monster was a male, as may be verified by inspection of 17 D., St. George's Hospital Museum. The possibility remains, however, that Dr. Blakeley Brown might have taken a male fœtus with imperfectly developed external organs for a normal female.* He would naturally take more pains in examining the monster than in the inspection of the live "healthy female infant."

23 B. "A fœtus of about the sixth month, consisting entirely of lower extremities and abdomen. The trunk ends, a little above the umbilicus, by a rounded surface covered with skin. The cord remains attached to the umbilicus." Female sex, labia and clitoris well marked; this point is not indicated in the catalogue.

Guy's Hospital Museum, 2539[35]. Head, thorax, and arms wanting; rudiments of intestine, including vermiform appendix. Two kidneys. "Trunk-hosed" lower extremities. Sex apparently female. Rather large specimen.

2539[40]. "Acephalous fœtus," in catalogue. This specimen is no longer in the Museum. I understand that it was rejected or exchanged many years ago by Dr. Hilton Fagge.

London Hospital Museum, O 79. Acephalous fœtus, male. Phocomelous left upper extremity, as in the unmounted specimen in St. Bartholomew's Hospital Museum. Two kidneys; intestines rather long. "Trunk-hosed" appearance of lower extremities.

Acardiacus Anceps, or Paracephalus. (St. George's Hospital Museum, 23 A.)—A soft round mass represents the head. The tongue is present. A large dorsal vessel communicates with the umbilical cord, but there appears to be no trace of a heart. (This is contrary, I

* See footnote, p. 13.

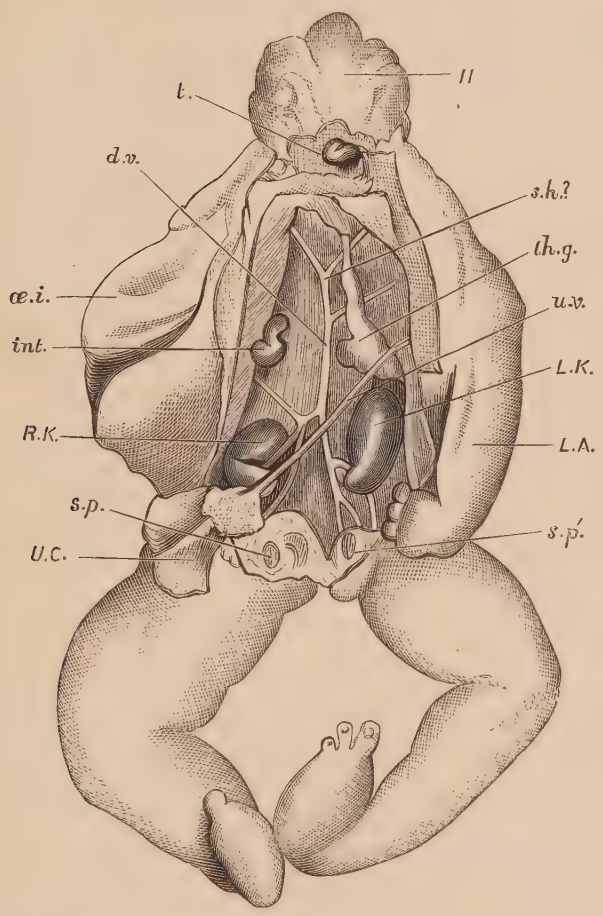

FIG. 7.—ACARDIACUS ANCEPS or PARACEPHALUS. *Mus. St. George's Hosp.*, 23A. *H.* The head, a tuberosity invested with wrinkled integument. *t.* Tongue. *th.g.* Thymus gland. *int.* Short blind coil of intestine; it has apparently been much displaced upwards during dissection. *R. K., L. K.* Right and left kidneys. *s.p., s.p'.* Symphysis pubis divided artificially. *œ.i.* Œdematous integument, wrinkled through the action of spirit. There is no trace of a right arm. *L. A.* Left arm. *U. C.* Stump of umbilical cord. *d. v.* Dorsal vessel. *u. v.* Umbilical vessel. It is said to have originally communicated with the dorsal vessel, but has apparently been separated from its connections. *s. h.*? Probable site of heart.

admit, to Ahlfeld's definition of anceps.) There are two kidneys. There is no right arm, and the left is imperfect. The lower extremities are "trunk-hosed;" double varus; toes imperfect. (Fig. 7.)

The embryological aspect of the phenomenon of acardiacus in twin labours has already been discussed. A good series of early twin ova is much to be desired. A precise knowledge of the human allantois is difficult to obtain. The latest work where that structure is described from direct observation of an early human embryo is Von Preuschen's 'Allantois des Menschen' (Wiesbaden, 1887). Of the placenta in twin pregnancies much more is known. I have already given references to papers on that subject.

The peculiarities of an acardiacus make us think of that great biological theme, the immediate stimulant or agent in development. Pretty theories about that harmonious balance between different organs which causes them to grow in strict proportion must fall to the ground. The existence of acardiacs proves that certain organs and structures may develop perfectly without any harmonious balance at all—indeed, without any other structures to balance them, even unharmoniously. W. Vrolik, writing of acormus in Todd's 'Cyclopædia' many years ago, observed: "This shows that in the absence of all the central organs, heart, lungs, skeleton, and brain, there may be a well-constituted skin surrounding an amorphous mass of cellular tissue, and only a single well-formed organ. . . . . Therefore we may conclude that each part is formed *sponte suâ*, and that it is in its evolution quite independent of the rest of the body."

The entire suppression of the absent parts, a condition quite distinct from atrophy, is strikingly displayed in acardiacus. The ductus arteriosus and the obliterated hypogastric arteries are never entirely effaced in the adult. Yet in an acardiacus three quarters of the body may be absent, and not represented even by a vestige of scar-tissue. Scarcely less singular is the absence of some of

the commoner malformations in the few parts which are present. Thus in Mr. Trestrail's case the rectum was patent inferiorly. One deformity, however, is exceedingly common, namely talipes; it was marked in the same case, where there were large nerves in the leg, but no cord. The evidence of acardiacs does not prove that afflux of nutrition is the chief agent in the development of organs. No doubt the upper parts, which lie in the direction where the circulation is most impeded, are the most frequently suppressed, whilst, when the head alone is present, blood reaches it by the anastomosis of vessels in the twin's amnia, and not through the cord. Still, in acephalous acardiacs, we see the greatest variety in the development of structures below the umbilicus, where the arterial circulation must be relatively free and active. In Dr. A. R. Simpson's case there were two legs and two innominate bones, yet the sacrum and coccyx were not to be found. In Mr. Trestrail's, the skeleton of the left lower extremity, including the same side of the pelvic girdle, was almost perfect; of the corresponding parts on the right side nothing was present excepting a rudiment of the ilium, yet the sacrum and coccyx appeared to be well-formed. The irregular suppression of different parts is probably due to the relative nutrition of each anatomical region, but indirectly. The collateral circulation must be very variable after the reversal of the blood-current, and the action of the brother twin's heart can seldom be of equal power in different cases. The œdema of the integuments is also variable; it must greatly influence nutrition. Yet even when it prevails so as to make the monster "an indigested and deformed lump," we may still find that the scanty relics of viscera which are present, perhaps half an inch of intestine and a couple of vertebræ, may lie perfectly developed in their bed of œdematous connective tissue.

METHODS OF CRANIOTOMY.

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(Received October 19th, 1888.)

(*Abstract.*)

In this paper the discussion of the relative merits of craniotomy and Cæsarean section is avoided. It is pointed out that it is of importance still further to improve the methods of craniotomy, since there are certain cases in which the operation is indicated and will continue to be performed even by those holding the most advanced views in regard to Cæsarean section; for example:

1. When forceps has been tried for a long time without effect, or when podalic version has been performed and the head cannot be extricated.

2. When there is certainty or great probability that the child is dead.

3. When the condition of the mother is such as would cause Cæsarean section to be almost certainly fatal.

4. In certain cases of deformity of the fœtus.

A Table of eighteen cases of craniotomy is appended, and in each case full details are given of the indications for the operation, the method adopted, and the subsequent history of the patient.

Remarks are then made on the method of craniotomy to be preferred: (1) in the less marked degrees of pelvic contraction; (2) in cases in which the contraction is considerable.

In the first class of cases the method to be preferred depends greatly on the nature of previous attempts at delivery. If the axis-traction forceps has been used to the limits of safety and

the head does not come through, the vertex may be perforated without removing the forceps, and the forceps used as a tractor after a firm grasp of the head has been obtained by turning the screw as far as possible.

The method recommended in the more severe degrees of contraction consists in (1) podalic version and extraction of the body, (2) perforation through the roof of the mouth, (3) cephalotripsy of the after-coming head, and (4) extraction of head by means of cephalotribe, or by traction on the body and lower jaw combined with supra-pubic pressure.

The advantages of this method are as follows:

1. The base of the skull is effectually broken up.
2. The head is well fixed during perforation and crushing.
3. The position of the head is easily altered, thus allowing the cephalotribe to be applied in different directions or the head to be brought down with its crushed diameter in the smallest diameter of the pelvis.
4. The collapse and moulding of the head are often brought about readily by combined traction on the jaw and body of the child and supra-pubic pressure.

The difficulties of this method are discussed under the following heads: Difficulty (1) in the preliminary version; (2) in extracting the body; (3) in perforating and crushing the head.

During the last few years the field of craniotomy has been narrowed in two directions: on the one hand the introduction of axis-traction forceps has increased the number of cases in which delivery by the forceps is possible, and on the other hand the remarkable recent success of Cæsarean section has caused this operation to supersede craniotomy in cases of extreme pelvic deformity. There are, indeed, some who go so far as to say that craniotomy is now unwarrantable, and that Cæsarean section should be performed in all cases of pelvic deformity in which forceps or turning offers little chance of extracting a living child.

It is not my intention to discuss here the relative merits of the two operations or to compare them with the induction of premature labour. Even if we admit the justice

of the more advanced views, there still remains a large number of cases in which craniotomy is indicated and will continue to be performed. These we may classify thus :

1. Cases in which the forceps has been tried for a long time without effect, or in which version has been performed and the head cannot be extricated. There are many cases in which the forceps or version seems to offer a fair chance of saving the child, but in which the undiminished head refuses to come through after prolonged efforts, and in which it would only be courting disaster to complete the labour by Cæsarean section. It is a matter of great difficulty in many cases to decide definitely beforehand whether a living child can be extracted *per vias naturales*. There are many factors to be taken into account, and the most experienced may be deceived in this matter. Instances of women who have had one or more living children, and one or more which had to be destroyed, come under the notice of most practitioners.

2. Cases in which there is certainty or great probability that the child is dead. It is seldom, apart from cases in which the fœtus is macerated, that one can be absolutely certain of the death of the child ; but if the labour has been very tedious, the waters have long escaped, and the fœtal heart is inaudible, there are few who would be rash enough to do Cæsarean section. A prolapsed funis is frequently associated with a contracted pelvis, and may give us a good indication of the state of the fœtus. Further, severe accidental hæmorrhage (showing extensive placental separation) renders the death of the fœtus very probable.

3. Cases in which the condition of the mother is such as would cause Cæsarean section to be almost certainly fatal, *e. g.* the coexistence along with the pelvic deformity of heart disease, nephritis, eclampsia, or severe hæmorrhage.

4. Cases in which there is some deformity of the fœtus, such as hydrocephalus or spina bifida, which renders its chance of surviving a very slender one. This deformity may be in itself the obstruction to delivery or may exist along with deformity of the mother's pelvis.

As long as the operation is called for in so many cases it is of importance that every effort should be made still further to improve the methods. The accompanying Table contains brief notes of eighteen cases in which I have performed craniotomy. Most of these occurred in connection with the extern maternity department of St. Mary's Hospital, Manchester.

The form of pelvic deformity demanding the operation was, with one exception (a justo-minor pelvis), either the flattened pelvis or the generally contracted flattened pelvis. In all of the cases the method of mensuration employed was that by which alone accuracy can be attained, namely, by the introduction of the whole hand into the vagina after the completion of the labour.

The cases arrange themselves naturally into two groups: (1) those in which the contraction was considerable, and (2) those in which it was less marked. In the first group there are seven cases (1, 3, 8, 9, 14, 17 and 18). In all of these the conjugata vera was under three inches, and in all of them the question of Cæsarean section as against the induction of premature labour might be fairly discussed in the event of future pregnancy. In all of them save one, Cæsarean section was out of the question by the time I saw them:—in Case 1 the child was probably dead; in Cases 14 and 18 the head alone was in the uterus; and in Cases 3, 8 and 9, the patients had been in labour many hours and were much exhausted. The second group, in which the contraction was not so marked (Cases 2, 4, 5, 6, 7, 10, 11, 12 13, 15 and 16), offers examples of cases in which there is a reasonable prospect of saving the child by forceps or version. In Cases 4 and 7 the pelves were normal; in one the head was perforated for hydrocephalus, in the other, on account of a rigid cervix, the child being macerated. In Cases 10 and 11 the pelvic contraction was further complicated by malposition of the head, and in Case 5 there was severe accidental hæmorrhage.

It may be remarked at once that these cases go to prove

the safety of craniotomy as regards the mother. In only three out of the eighteen was the convalescence more protracted than it would probably have been after a normal labour, and all of these made a complete recovery.

As regards the method of craniotomy, the indications are obvious in the less severe degrees of contraction, and depend in great measure on the nature of previous attempts at delivery. If the case seems a suitable one for forceps, there are few who do not now prefer some form of axis-traction forceps. If traction has been used to the limits of safety and yet the head does not advance, the plan that seems to recommend itself as the simplest is to perforate the vertex without removing the forceps, then after obtaining a firm grasp of the more or less collapsed head by turning the screw as far as possible, to use the forceps as a tractor. If version has been the initial operation, the aftercoming head may be perforated, and then brought past the obstruction by traction on the body and suprapubic pressure. In other cases it may be advisable after perforating to wait until the head is moulded and delivered by natural powers.

The method to be preferred in graver cases is still very far from being settled, notwithstanding the numerous instruments for diminishing or comminuting the head. The resistance offered by the firm base of the skull after the vertex has been demolished constitutes the main difficulty of the operation. To overcome this difficulty Dr. Braxton Hicks suggested, in a paper read before the Obstetrical Society in 1864, that the face should be brought down by means of a hook fixed in the orbit, so that the base might pass edgewise; and this is now generally recognised as the best mode of delivery after cranioclasm in cases of marked pelvic contraction. Dr. Barnes thinks that face presentation is more easily produced by the cranioclast. Since then the cephalotribe has come into more general use in this country, and this instrument is believed by many to fracture and crush the base thoroughly when applied to the forecoming head. Even such an eminent authority as Dr. Barnes says:—"When this instrument is applied

to the perforated head, it may be made to partly crush the base, imparting great plasticity; then the base is tilted edgewise."* From observations made on many cases of cephalotripsy, as well as from experiments on stillborn children, I have come to the conclusion that the base is rarely, if ever, crushed when the cephalotribe is applied to the forecoming head. Still more recently Simpson has introduced the basilyst with the intention of breaking up the base, and Tarnier's basiotribe is furnished with a gimlet for a similar purpose. The latter instrument is far too complicated ever to come into general use; the former is simple, and no doubt might be of use in many cases, were it at hand.

In the first two severe cases in the Table (Cases 1 and 3) the greater portion of the vault of the skull was broken up and removed, and then the base gave rise to great difficulty. In each case I adopted the plan recommended by Dr. Braxton Hicks and brought down the face. Although I ultimately delivered in this way, I experienced that the process was certainly not an easy one, or by any means free from risk. It involves dragging on the skull with a hook which is liable to slip if the necessary degree of force is used. As a result of the trouble I had in these two cases I decided to direct my attack chiefly against the base of the skull in the next craniotomy case I had to deal with, and it occurred to me that it might be better if version were first performed, and the head attacked from below. I therefore adopted this plan in the next severe case, and was astonished at the comparative ease with which the head was delivered, and have consequently preferred this method in all subsequent cases where the contraction was marked. If craniotomy was decided on in any case, podalic version was first performed, and one leg brought down. The body was delivered by traction, care being taken to prevent the chin turning forwards. The arms having been brought down, the forefinger of the left hand was passed into the mouth, and the chin was strongly

* 'Obstetric Operations,' 4th ed., p. 336.

depressed, so as to open the mouth widely and flex the head as far as possible. Flexion of the head was also promoted by traction on the legs, the direction of traction being inclined toward the side of the pelvis to which the occiput was directed, In most of the cases the head lay with its long diameter nearly corresponding with the transverse diameter of the pelvis. The perforator was now guided into the mouth, and having been forced through the roof of the mouth as far back as possible, was opened widely and crucially. The cephalotribe was then used to crush the head in one or more directions, and the head was ultimately delivered by using the cephalotribe as a tractor, or by traction on the body and lower jaw combined with supra-pubic pressure.

This method was employed in Cases 6, 8, 9, 13, and 17, and practically in Cases 10 and 15, which were breech presentations. It was also employed in an imperfect and rough manner in Cases 14 and 18, but in these cases there was the great disadvantage of having no body to steady the head with or pull on. In Case 17 the perforator was introduced below the occiput as well as through the mouth, thus securing more thorough fracture of the base. In this case, which is a good example of a markedly contracted brim, delivery was accomplished with comparative ease in three quarters of an hour, and without appreciable shock to the mother.

I believe this to be the simplest and safest method of operating in the great majority of cases in which craniotomy is required. For cases of comparatively slight contraction it is not necessary. Further, I do not recommend it in extreme degrees of contraction, that is to say, where the conjugata vera is less than two inches, or where along with contraction of the conjugate there is also marked contraction of the other diameters of the pelvis. In such cases extraction of the body would undoubtedly only be accomplished with great difficulty. Fortunately cases of this nature are extremely rare. I have never had to deal with them, but am inclined to think that Cæsarean section

would be as safe for the mother as any method of craniotomy. I therefore believe that this method brings us to the boundary line between craniotomy and Cæsarean section.

The advantages of craniotomy on the aftercoming as compared with the forecoming head seem to me to be as follows :

1. *The base of the skull is effectually broken up.* If the lower jaw is well drawn down and the perforator introduced well back in the hard palate it will pierce the basi-sphenoid, and when opened up in a crucial manner will thoroughly disintegrate the most resistant part of the skull. I have satisfied myself that this is so by a careful examination of all the skulls I have perforated in this manner, and also by experiments on full-time fœtuses. If the cephalotribe be now applied, the base does not tilt but collapses in the centre in a V-shape, and the bones forming the vault of the skull are flattened against each other by the blades of the instrument. It will be seen, therefore, that this method has a different aim from craniotomy on the forecoming head. In the latter we aim at crushing the vault and tilting the base ; in the former we fracture and double up the base and compress the vault, the bones of which readily lend themselves to this compression.

2. *The head is well fixed during perforation and crushing.*—In severe pelvic contractions the difficulty of craniotomy is greatly increased by the mobility of the head above the brim. In the method above described, the head is efficiently steadied by traction on the body and suprapubic pressure.

3. *The position of the head is easily altered,* thus allowing the cephalotribe to be applied in different directions, or the head to be brought down with its crushed diameter in the smallest diameter of the pelvis. We are frequently advised by obstetric authors to crush the head in different directions with the cephalotribe. Now, all who have tried to do this in head-first cases must have been struck with the difficulty of rotating the head at the brim, and also with the persistency with which the blades of the cephalo-

tribe fall into the grooves made at the first crushing. The difficulty of rotating the head probably depends on the fact that its movements are hampered by the body of the child. This difficulty is not met with when the head comes last, for its position can be altered with comparative ease. I prefer to do this with the cephalotribe, rotating the instrument through a quarter-circle, and thus bringing the crushed diameter of the head into the conjugate in the flat pelvis. If the tips of the blades of the cephalotribe be well buried in the fœtal head, and the handles well drawn back to the perineum, there is little risk in this procedure; the pelvic curve of the instrument is so slight as not to interfere with this rotation.

4. *The collapse and moulding of the head is often readily brought about by combined traction on the jaw and body of the child, and supra-pubic pressure.* We have a strong "vis a fronte" and also a powerful "vis a tergo." In head-first cases traction can only be made by means of crotchet, craniotomy forceps, or cephalotribe, and there is always great risk of these slipping. Not only is our traction deficient in these cases, but supra-pubic pressure is not nearly so advantageously applied as it is to the after-coming head. In fact, all the arguments advanced in favour of version as compared with forceps in flat pelves, apply with greater force here.

There are three points which are likely to present themselves to many as possible difficulties in the way of this method:—1st, the difficulty of the preliminary version in some cases; 2nd, the difficulty in extracting the body; 3rd, the difficulty in perforating and crushing the head.

Difficulty in version may arise from two causes, namely, uterine contraction and extreme pelvic deformity. The presence of either of these conditions to a degree sufficient to prevent version is extremely rare in the class of cases under consideration. Tetanus of the uterus rarely occurs until the patient has been long in labour and expulsive pains have set in. The contraction of the pelvis as a rule prevents the head engaging, and the cervix from being

distended, and the first stage is generally prolonged. Tetanic contractions would be more likely to occur quickly in cases of slight contraction, where the cervix has retracted and the head is partially or completely engaged, or in cases of transverse presentation, where the shoulder is jammed down and expulsive pains have set in. Again, in the class of cases in which craniotomy is most frequently called for, the pelvic cavity and outlet are relatively large, the pelvis is shallow, and the head is freely moveable at the brim. If uterine action be suspended by deep anæsthesia one will often succeed in turning by the bi-polar method. I have been much struck with the facility with which this operation is often performed, even when the waters have escaped, and am convinced that failure is often due to want of perseverence, and especially to the fact that chloroform is not pushed far enough. In the event of the bimanual method failing, the hand may be introduced into the uterus: with a little care a moderately sized hand may be passed through a brim much contracted.

In the more marked degrees of contraction there is often considerable difficulty in bringing the body of the child through the brim, but with steady and prolonged traction, first on one leg and then with the assistance of a finger passed over the other thigh, the breech and trunk will generally pass the obstruction. In any case, we are in a more favourable position for extracting the body than in head-first cases, as we bring the smaller end of the wedge through first. The arms generally become extended, but as a rule there is sufficient room in the transverse to allow one or two fingers to be passed up and to bring down the arms, fracturing them if necessary.

It is not necessary to add much more as regards the perforation and crushing of the aftercoming head. These are generally regarded as very difficult operations, but the difficulties are more theoretical than practical. I have never experienced any real trouble in the seven cases I have treated thus. One could conceive that these processes might be very formidable in cases where the pelvis

was deep and contracted in the transverse, but the reverse of these conditions is usually met with. There is one point in connection with the perforation which I wish to emphasise : the perforator must be introduced as far back in the roof of the mouth as possible, and with an inclination backwards in relation to the fœtal head ; otherwise there is a liability on opening the instrument for one of its points to cut right through the alveolar edge of the lower jaw and appear in the face, in which case the uterus might be injured.

It may be advanced as an objection to the method advocated that the performance of version introduces an additional element of risk in these cases. I believe that the risk of version carefully performed under chloroform and with rigid antiseptic precautions is almost *nil* in the vast majority of cases, and that certainly the risk involved in the double operation is less than that attending the single operation of craniotomy of the forecoming head.

The object of this paper is simply to draw attention to the advantages of craniotomy of the aftercoming as compared with the forecoming head. The operation has been practised for centuries, yet in the majority of text-books of midwifery it is either not mentioned or is referred to as an operation much more difficult and tedious than craniotomy of the forecoming head, but which is sometimes unavoidable after version. Further, in most descriptions of the operation we are advised to perforate either behind the ear or below the occiput. Apart from making an opening in the skull through which its contents may escape, there is nothing gained in the former situation, while the latter is inferior to the roof of the mouth from the fact that the base is not so thoroughly fractured.

No.	Name and age.	Previous pregnancies.	Date of operation.	Conditions requiring operation.	Method of operation.	Previous confinements.	Convalescence of mother on this occasion, and remarks.
1	A. L., 26	2	Jan. 21, 1885	Generally contracted, flattened pelvis; conjugata vera 2⅞ inches; waters escaped 12 hours; patient much exhausted, and uterus firmly contracted; large firm head; fœtal heart inaudible	Perforation of vertex; cephalotribe used without success; whole vault of skull removed with cranioclast; difficulty with base; head tilted and face brought down with hook fixed in orbit	1st:—Forceps; child stillborn. 2nd:—Natural powers; small child, which lived a few days; very tedious labour	Tedious recovery; cellulitis ending in abscess. Next labour induced at 7½ months; child stillborn.
2	M. E. M, 25	2	Nov. 1, 1885	Generally contracted, flattened pelvis; C. V.=3¼ inches; forceps tried for some time, but head would not pass brim	Vertex perforated, and large plate of bone removed with cranioclast; head collapsed, and was easily drawn through with cranioclast	1st:—Premature. 2nd:—Axis-traction forceps; child alive, head much moulded	Uninterrupted recovery; patient died at next confinement; labour lasted 60 hours; head in cavity much moulded; low forceps.
3	S. S., 19	0	Nov. 7, 1885	Generally contracted, flattened pelvis; C.V.=2⅜ inches; patient in labour 55 hours; much exhausted	Head, high above brim, fixed by pressure through abdominal wall; perforation; cephalotribe used to crush skull, but failed to bring head through brim; vault of skull removed with cranioclast; base stuck; face brought down with hook in orbit; inferior maxilla removed; after great difficulty cephalotribe applied to remaining portion of head, and used as tractor	None	Tedious recovery; parametritis. Next confinement by natural powers at 6th month.

No.	Name and age.	Previous pregnancies.	Date of operation.	Conditions requiring operation.	Method of operation.	Previous confinements.	Convalescence of mother on this occasion, and remarks.
4	E. F., 26	1	Nov. 20, 1885	Dead fœtus, rigid cervix, and uterine inertia; scalp of fœtus was peeling, and perforation was preferred to forceps on account of rigid cervix; pelvis normal	Perforation of vertex; then case left to nature; head collapsed, and was soon expelled	Normal	Uninterrupted recovery.
5	M. J. C., 22	1	Dec. 30, 1885	Flat pelvis; C. V. = $3\frac{1}{4}$ inches; severe accidental hæmorrhage; axis traction forceps tried for some time without success	Forceps kept on and screwed tight after vertex was perforated; head then came through easily	Natural powers; child stillborn	Recovery complete, but slightly delayed
6	A. M., 27	0	Jan. 10, 1886	Shoulder presentation with flat pelvis; C. V. = 3 inches; podalic version; head stuck at brim; manual methods and forceps tried without success	Perforation through mouth (head in transverse diameter of pelvis); cephalotribe applied, and head crushed and drawn through	None	Uninterrupted recovery.
7	E. G., 28	2	Feb. 3, 1886	Large hydrocephalic head; pelvis normal	Axis-traction forceps, then perforation and head drawn through with forceps	Both normal	,,
8	E. P., 22	0	Feb. 12, 1886	Generally contracted, flattened pelvis; C. V. = $2\frac{3}{4}$ inches; membranes ruptured 12 hours; patient exhausted	Version; head arrested at brim; perforation through mouth; head crushed with cephalotribe; allowed time to mould; expelled by natural powers	None	,,
9	J. R., 28	2	April 1, 1886	Generally contracted, flattened pelvis; C. V. = $2\frac{3}{4}$ inches; forceps failed to move head; patient exhausted	Version; head arrested; perforation through mouth; cephalotribe employed to crush head, then as tractor, the head being rotated slightly	1st:—Craniotomy. 2nd:—Forceps; premature child, stillborn	,,

				brought down and body delivered; head stuck at brim; manual methods and forceps unsuccessful	with traction and supra-pubic pressure	dren delivered by natural powers; all stillborn	
11	M L., 43	7	May 29, 1886	Flat pelvis; C. V. = 3 inches; large firm head, with occiput inclined backwards; head greatly moulded; forceps applied four times but constantly slipped; head impacted	Perforation of vertex; two large plates of bone twisted off with cranioclast; head soon moulded, and was expelled by natural powers.	1st and 2nd :— Natural powers; children living. 3rd :—Forceps; child stillborn; four miscarriages	,,
12	M.K., 27	5	June 29, 1886	Flat pelvis; C. V. = $3\frac{1}{4}$ inches; brow presentation; funis prolapsed and pulseless	Perforation through frontal bone; cranioclast used as tractor	Forceps at two previous labours	,,
13	J. W., 37	1	July 23, 1886	Flat pelvis; C.V. = $3\frac{1}{4}$ inches; funis prolapsed, pulsating; bipolar version; head arrested at brim	Perforation through mouth (child being dead), and base broken up; extraction by means of traction and supra-pubic pressure	Tedious labour; natural powers; child small; survived 3 weeks	,,
14	M. E. L., 17	0	July 25, 1886	Generally contracted flattened pelvis; head alone in uterus, body having been torn off by practitioner in efforts to deliver after version; C.V. = $2\frac{3}{4}$ inches	Head crushed with cephalotribe; then position of head altered, and crushing repeated in different diameter; traction with finger in scalp and supra-pubic pressure brought head through thoroughly crushed	None	
15	M. C., 40	6	Sept. 26, 1886	Generally contracted pelvis; C. V. = $3\frac{1}{4}$ inches; large child; breech impacted; brought down with difficulty by hook in groin; head stuck at brim; manual methods and forceps unsuccessful	Perforation through mouth and base broken up; head extracted by traction and supra-pubic pressure	One living child; all the rest delivered by instruments and stillborn	,,

No.	Name and age.	Previous pregnancies.	Date of operation.	Conditions requiring operation.	Method of operation.	Previous confinements.	Convalescence of mother on this occasion, and remarks.
16	G. W., 42	11	Nov. 21, 1886	Flat pelvis; C. V. = 3¼ inches; axis-traction forceps failed to bring head through; funis slipped down; pulseless	Perforation through vertex; all sharp spicules of bone removed, then version, leg being within reach; head collapsed and came through on traction being applied to trunk	Seven instrumental (several times craniotomy)	Uninterrupted recovery
17	A. B., 23	0	Mar. 8, 1887	Generally contracted, flattened pelvis; C. V. = 2⅜ inches; in labour 16 hours; membranes ruptured; os three quarters dilated, soft	Version; great difficulty in getting breech through brim; cord prolapsed, pulseless; head arrested at brim in transverse diameter; perforation through mouth and also beneath occiput; cephalotribe used to crush head but failed as tractor; powerful supra-pubic pressure combined with traction on body and lower jaw brought head through, much diminished	None	Uninterrupted recovery; next labour induced at 7½ months; version; perforation again necessary
18	Mrs. P., 37	0	Apr. 20, 1888	Generally contracted, flattened pelvis; C. V. = 3 inches; head alone in uterus; child turned by practitioner, and body torn from head in efforts to extract	Cephalotribe applied and head crushed and turned round so that crushed diameter was in conjugate of brim; head extracted with cephalotribe	None	Tedious recovery

Dr. Champneys said that Dr. Donald's paper was a welcome contribution at the present time. It was long since craniotomy had been discussed in that Society. The first thing that struck him was the large number of craniotomies, in 1886 no less than eleven. He thought that the number of women requiring perforation in London was much less than this, and he spoke of poor women in hospitals and maternities as well as patients in private practice. He was not, however, criticising the paper as regarded the necessity for perforation, Dr. Donald having given his justification in the measurements embodied in the paper, but he thought there must be some hygienic reason to account for it, and he asked Dr. Donald what was the common cause of the deformities in his cases. From the description of the pelves it was most likely rickets. One statement in the paper struck him as being somewhat in advance of our present knowledge, namely, the statement that the field of the forceps had been enlarged by the introduction of axis traction. Granting the advantages of axis traction, he did not think that it had yet been proved that the dimensions of possible birth alive at term by forceps had been extended by its introduction, in the hands of skilled operators. In Case 17 he did not approve of the treatment. The pelvis was generally-contracted—flattened. The conjugate was only two inches and three eighths. Delivery was very difficult. He thought that the proper treatment in such a case was not perforation at all, but Cæsarean section. Very likely, however, Dr. Donald had not conducted the case from its beginning, and craniotomy was not an operation of election in this case, but one of necessity after previous treatment. As regards the question of the action of the cephalotribe, it was generally stated in books that compression in one diameter (the transverse) produced expansion in the opposite diameter (the antero-posterior). He believed, however, that it had been shown that no such compensatory expansion took place, but that the change in the head consisted in its elongation vertically, just as in traction by craniotomy forceps. Finally, he thought that the result of this interesting and practical paper would be that the hitherto unpopular perforation of the after-coming head would require a new trial; and, if it should be approved, the procedure of forceps in the first instance, version in the second, and perforation of the after-coming head in the third might take the place of our present practice in cases of slight contraction.

Dr. Herman, after complimenting the author upon his paper, said that, like a former speaker, he did not think that the range within which the forceps was applicable had been increased by the introduction of axis-traction forceps. He thought that in the enthusiasm with which the introduction of this forceps had been greeted, its advantages had been exaggerated. In a recent discussion (May, 1886) of the subject in Paris (the birthplace

of the axis-traction forceps), more than one speaker had maintained that it was inferior to the ordinary forceps. He observed that the mortality in Dr. Donald's cases was *nil*. He did not see any reason why the mortality after craniotomy (if done at the proper time) should exceed that of normal labour. He had noticed with pleasure the way in which Dr. Donald had spoken of the method of measuring the pelvis with the whole hand introduced into the vagina after delivery. He had said it was the only accurate way of measuring the pelvis, and in that he (Dr. Herman) quite agreed with him. He (Dr. Herman) thought that sufficient prominence was scarcely given to this method of measurement in obstetric text-books. The fullest, most precise, and he believed the first description of this mode of measurement was that given by Mr. Robert Wallace Johnson in his 'System of Midwifery,' published in 1769, and he thought this method might appropriately and justly be spoken of as "Johnson's method of measurement." He thought the comparative ease of cephalotripsy and cranioclasm largely depended on the amount of practice in the two operations which the operator had had. An operator experienced in cephalotripsy but not in cranioclasm would prefer the former, and *vice versâ*. He had used the cephalotribe both to the fore-coming and the after-coming head, and he did not think that advantages attended the latter operation which compensated for the additional risk of the preliminary version. He had never perforated through the roof of the mouth, nor behind the ear, but always below the occiput. Perforation was a little more difficult in the case of the after-coming head, because the space through which the perforator had to be guided (between the fœtus and the maternal soft parts) was smaller. He had not found greater difficulty attended the extraction of the fore-coming head than the after-coming head. He had not found the cephalotribe, when properly applied (*i. e.* to the greatest diameter of the head) and well screwed up, prone to slip; and he thought the instrument was constructed with a view to the prevention of slipping, in that the blades were curved towards one another at the tips, so that they could not slip if closely approximated. This was so in the instrument which he had always used, that of Dr. Braxton Hicks. Like previous speakers, he had found one good crushing usually enough; and he could corroborate also what had been said about the tendency of the blades, when a second crushing was attempted, to fall into the grooves made by the first crushing. In extracting, he had always, after well crushing the fore-coming head, rotated it so that the part crushed and held in the cephalotribe should come to lie in the most contracted diameter of the pelvis. He had not found difficulty in doing this. If the neck offered resistance, from the position of the shoulders, it could be overcome by external pressure on the shoulders, so as to push

them in the required direction. He had always taught this rotation of the head after crushing as an essential step in the operation; and at least in some text-books of midwifery it was advised. Dr. Donald had not speculated as to the cause of the pelvic deformity in his cases. He (Dr. Herman) thought that when there was not clear evidence in the skeleton of the existence of rickets, it was better to refrain from a diagnosis as to the cause of the change in the bones, than to infer rickets merely from slight peculiarities in the shape of the pelvis, as was sometimes done.

Dr. Galabin fully agreed with the author in preferring the cephalotribe to all other forms of extractors after craniotomy. He considered it equally adapted for simple and for difficult cases, and available for all forms of contraction, for generally contracted as well as for flattened pelves. Its great advantage was that the pieces of bone remained covered by the scalp, and did not tend to protrude so much as when seized by craniotomy forceps. He was not, however, yet prepared to accept the view that the after-coming head was preferable for perforation and extraction. Doubtless the present paper should lead us to put the matter still further to the test. But it appeared to him that the author himself had not made fair or effectual trial of the cephalotribe, as used in the best way on the fore-coming head. In all the cases recorded by him the fore-coming head was extracted by cranioclasm and removal of pieces of bone. This was doubtless a troublesome and tedious operation, but was almost always quite unnecessary. It was only required to get a central grasp with the cephalotribe by passing the fingers high up above the brim to guide the blades, if necessary. When this had once been done, no repeated crushings were required. The diameter grasped could be reduced to one and a half inches, and the opposite diameter was not appreciably enlarged. The crushed head could thus be brought through any brim through which one could reasonably expect to extract the body without injury, and it was of no consequence that the base of the skull was only tilted and not broken up. Doubtless the after-coming head could be easily perforated and extracted in ordinary cases, but in very difficult cases he considered the operation less favourable than that on the fore-coming head, as a large body of the child might render the adjustment of the blades more difficult. The two most difficult cases of extraction ever met with had occurred after version, the difficulty commencing when the pelvis of the child began to enter that of the mother. In one of them this occurred, although the pelvis had a conjugate as large as two and three quarter inches. In this instance version had been performed in order to give the child a chance, as the mother had only been married seven months, and asserted falsely that she could not be pregnant for more than that time.

Dr. Gervis joined the preceding speakers in thanking Dr. Donald for his interesting paper. Dr. Donald's suggestion of perforating the head after the axis-traction forceps was applied, and then using the forceps as a tractor to complete the delivery, in lesser cases of contraction, he thought worthy of further trial, as well as his more important proposal to perforate the after-coming head through the roof of the mouth after the performance of version. In his own experience he had not found version in contracted pelves so difficult as had been suggested. In many cases of flat pelvis with a conjugate of three or even a little more he had easily completed delivery by version after perforation through the cranial vault in the ordinary way, taking, of course, the greatest care that there were no protruding or loose spiculæ of bone. He entirely concurred with Dr. Galabin and Dr. Herman as to the great value of the cephalotribe, and if care were taken to pass the tips of the blades well above the base, he rarely found any trouble arise from the instrument slipping.

Dr. Routh was glad to hear an obstetrical paper read before the Society of so much practical value, and congratulated the author thereon. He thought, however, that should there be any difficulty in perforation or using the cephalotribe in footling cases, or where turning had been previously had recourse to, from the presence of the large body of a child, this could be remedied by a plan he had seen carried out in Vienna with great success many years back. It was to practise decapitation close up to the foramen magnum. This could be readily done by the large curved decapitating scissors used in that hospital. These were bent at an obtuse angle, and like bone forceps, owing to their long handles, were very powerful and readily effected the object in view. Either perforation or cephalotripsy could then be readily and easily adopted, the head being steadied by pressure from above, assisted by any uterine contractions. Secondly, he had himself seen in that Society Dr. Robert Barnes cut through a child's head, and in different directions, by means of the écraseur wire. During this process the very tightening of the wire caused all spiculæ of bone to be turned in, covered with skin, so that danger of wounding the soft parts, in extracting the pieces so cut, was reduced to a minimum, and should never occur in the hands of a qualified accoucheur. Lastly, he believed no comparison between London cases and Lancashire ones, because of the frequency of pelvic deformity in the latter, was just. The girls there were mostly factory girls, hard-worked almost from infancy, much more so formerly than now. Their mode of living was also very defective. The necessity of perforation in these localities was therefore due to their habits of life, and not left to the option of the practitioner.

Dr. William Duncan wished to emphasize the importance of

version in cases of contracted pelvis before resorting to perforation. He considered that several of Dr. Donald's cases could probably have been delivered by this means. With regard to version as a means of delivery after perforation, he could endorse what had fallen from Dr. Gervis as to its value, having successfully employed it in some cases. The suggestion by one of the speakers that decapitation should be done where the head was impacted after version was, he thought, one that should not be adopted, owing to the difficulty of operating on the head after the body of the child had been removed.

Dr. Horrocks pointed out that the subject of the paper was a comparison of the methods of craniotomy, and therefore it was scarcely fair to drag into the discussion the use of axis-traction forceps or the relative merits of Cæsarean section. Like previous speakers he had found the cephalotribe a splendid instrument, indeed, he had never yet been obliged to resort to cranioclasm, and had never seen that operation performed, the cephalotribe answering every purpose. Dr. Donald did not mention certain cases where perforation of the fore-coming head was an advantage, for example, in hydrocephalus, the head presenting. A careful inspection of the cases brought forward showed that where the pelvis was only slightly narrowed, perforation of the fore-coming head had been performed and delivery successfully accomplished. It was in the cases of considerable narrowing that Dr. Donald had carried out the novel procedure of performing version and then perforating the after-coming head. Dr. Horrocks did not think that in some cases where labour had been going on a long time, version could be performed without great danger. He mentioned two cases in which it had been attempted, with the result that the mothers as well as the children were lost. The advantage of perforating and crushing the after-coming head was that it could be held firmly, and so a good hold could be obtained, for it must be admitted that in applying the cephalotribe to the fore-coming head it not infrequently slipped off the globe of the head as it was being screwed up tightly.

Dr. Routh, in explanation, said: In speaking of the use of the decapitating scissors, he had not spoken, like Dr. W. Duncan, from theory, but from experience, and he denied that the decapitated head was not steadied. The pressure on the abdomen from above and the uterine contractions conjointly made it very steady.

Dr. Cullingworth hoped that, amidst the numerous side-issues that had been raised during the discussion, the point of main interest in the paper would not be allowed to drop out of view. He felt that, after the experience of Dr. Donald, as to the relative merits of perforation of the fore-coming and of the after-coming head in certain cases of pelvic deformity, and after

the careful experiments he had made upon the dead fœtus, it was clearly desirable that obstetricians should give the latter method a fair trial. He quite agreed with Dr. Champneys in thinking it not by any means improbable that the result of this paper would be to bring about a change of practice. Some surprise had been expressed at the number of cases requiring craniotomy that had occurred in Dr. Donald's practice. The facts were these: The maternity department at St. Mary's Hospital, Manchester, was almost entirely an out-door department, the women being attended at their own homes by a staff of trained midwives; the average number of cases attended annually was about 3000. In all cases of difficulty or danger it was the duty of the midwife to send for the resident obstetric assistant, who usually held office for three years. The cases tabulated in the paper occurred during Dr. Donald's tenure of this office. He might add that St. Mary's Hospital was not only the oldest, but, until quite recently, the only lying-in charity of any importance in Manchester, and that the area of its operations was a very wide one, including the greater part of both Manchester and Salford, of which the combined population exceeded half a million.

Dr. W. Griffith described a method, often employed at Queen Charlotte's Hospital, of delivery by the cranioclast in cases of considerable contraction. After perforation the head is seized by a powerful cranioclast, and while traction is made rotation is also slowly performed, the effect being that the base of the skull is broken up into fragments, in a way that no cephalotribe can accomplish, the crushing of the base being caused by its forcible rotation in the contracted brim, and apparently without injury to the soft parts of the mother. Dr. Griffith used both the cephalotribe and the cranioclast, and believed them both to be invaluable instruments.

Dr. Donald, in replying, believed that the percentage of craniotomy in Manchester was not so high as Dr. Champneys had inferred. Sixteen of the cases recorded in the Table had occurred in the extern maternity department of St. Mary's Hospital, and in two of these cases the operation had been performed in a perfectly normal pelvis on a dead or non-viable fœtus. During the period of time over which these cases extended there had occurred in the extern department of the hospital almost exactly 10,000 confinements, so that the proportion of cases of craniotomy for deformed pelvis was about one in 700 labours, not a very large proportion in the practice of a hospital which had to deal with patients of the very poorest class. As to the statement in regard to axis traction to which Dr. Champneys and Dr. Herman had taken exception, he could only give it as his personal experience that delivery had been brought about by axis-traction forceps with comparative ease in

many cases in which the ordinary forceps had failed in his hands, and in which craniotomy seemed to be the only other resource. In reference to the criticism on Case 17, he did not perform version with the view of saving the child, but, believing craniotomy to be inevitable, he preferred to do it on the after-coming head. He agreed with Dr. Champneys in thinking that Cæsarean section was the better treatment in this case. He had had an opportunity of examining the patient at her second confinement, and had been confirmed in the opinion that the patient could never be delivered of a viable child *per vias naturales*. While sharing the preference expressed by Dr. Galabin and other speakers for the cephalotribe as compared with the cranioclast, he did not think the former instrument was perfectly satisfactory in cases of extreme pelvic deformity when applied to the fore-coming head. In spite of the theoretical excellencies pointed out by Dr. Herman, cases frequently occurred in which it slipped when it was used as a tractor. This, he believed, was due to the tilting of the base of the skull. Further, it was in many cases a matter of the greatest difficulty to rotate the fore-coming head by means of the cephalotribe. The body of the child had never offered any great obstacle in any of the cases in which he had crushed the after-coming head. If the legs and trunk of the child were drawn well up towards the abdomen of the mother there was no difficulty in passing the whole hand, or at any rate the four fingers, behind the child into the pelvic cavity, which in the flattened pelvis was relatively large. It was a positive advantage to be able to apply traction on the body so as to steady the head in perforating and crushing, and to assist in extracting. He had adopted in one case the method advocated by Dr. Gervis and Dr. William Duncan, and had performed version after perforating the vertex. He objected to this method because the base of the skull was undiminished, and also because spicules of bone and portions of connective tissue and brain substance were liable to be left inside the uterus. He had already discussed in his paper the objection as regards the difficulty in version, but might further state that in the course of his experience he had only met with two cases in which, after deep anæsthesia had been induced, it seemed to be dangerous to attempt version. Still, the treatment must vary according to the special features in each case, and if the lower segment of the uterus was found to be thinned out and retracted, then the vertex should be perforated in preference to the method advocated.

ANNUAL MEETING.

FEBRUARY 6TH, 1889.

JOHN WILLIAMS, M.D., President, in the Chair.

Present—48 Fellows and 6 Visitors.

The President declared the Ballot open for one hour, and appointed Dr. Clapham and Dr. Jamison as Scrutineers.

Books were presented by Dr. Bantock, Dr. Barbour, Mr. Alban Doran, Dr. Fort, Dr. Jacobi, Dr. Playfair, Sir T. Spencer Wells, the Clinical Society of London, the Guy's Hospital Staff, and the St. Bartholomew's Hospital Staff.

Arthur Graham, L.R.C.P. & S.Ed., was admitted a Fellow of the Society.

William James Best, M.R.C.S. (Dover); Edward T. Crouch, M.R.C.S. (Gosport); and William Duncan, L.R.C.P. & S.Ed. (Bristol), were declared admitted.

The following gentlemen were elected Fellows of the Society:—William Henry B. Brook, M.B.Lond. (Lincoln); Arthur Henry Weiss Clemow, M.D., C.M.Ed.; William Edward Dawson, L.K.Q.C.P. & L.M.; Henry Willingham Gell, M.A., M.B.Oxon.; Charles D. B. Hale, L.R.C.P.Lond.; Charles Beyer Humphrys, L.R.C.P. & S.Ed. (Bourne-

mouth); Robert Reid Rentoul, M.D. (Liverpool); and Leonard Remfry, L.R.C.P.Lond.

The following gentlemen were proposed for election:—Matthew Benson, M.D. (Wigan); Jehángir J. Cursetjee, L.F.P.S.; Charles Arthur Goullet, L.R.C.P.Lond.; and John Wayte, M.B.Oxon. (Croydon).

DISEASED FŒTAL MEMBRANES OF UNCERTAIN NATURE IN EARLY PREGNANCY.

By Dr. John Phillips.

Referred to a Committee.

ANENCEPHALOUS FŒTUS.

By Alban Doran, for Dr. William Skene, of Cardiff.

This monster was born on November 22nd, 1888. Dr. Skene writes:—"I never saw the woman, Mrs. E—, till I was called to attend her during her confinement. I found her in strong labour. On examination, a large bag of membranes was protruding, and was ruptured during the first pain she had after my arrival, and the child almost immediately followed. The quantity of liquor amnii was enormous. She had been pregnant, including this, five times during the last seven years. Three children were born alive (males), and are still alive and healthy; the other was an abortion. Mrs. E— tells me that she has experienced nothing unusual during this pregnancy, except that about two months ago she had an attack of hæmorrhage, unattended by pain, which lasted for three days, very considerable at first, then slight, but for which she

had no medical attendance; rest sufficed. She had not had any fright, blow, or fall. Her circumstances appear comfortable. Until two years ago she suffered, during a period of six years, from epileptic convulsions." The family history included no evidence relevant to this case. The mother's husband was "a very healthy looking man."

The fœtus weighed one pound thirteen ounces. It measured from the frontal eminence, the highest point in the monster, to the coccyx, six and a half inches; from the same eminence to the right heel, the leg being drawn straight, ten inches. In general form and the position of the limbs it resembled a frog. The head was strongly extended, the occiput and back of the neck not existing; the space between the chin and sternum was abnormally wide. The face looked straight upwards, the features were large. The vault of the skull was entirely deficient. The integuments joined the dura mater along a line representing the lower limits of the frontal plate of the frontal bone and the lower part of the parietals. The basilar portion of the sphenoid projected upwards; the corresponding part of the occipital was ill developed, and bent downwards from its junction with the sphenoid almost at a right angle. Posteriorly the integumental line ran along each side of the widely opened laminæ of the cervical and dorsal vertebræ, and joined in the dorsi-lumbar region. The lumbar vertebræ were similarly deficient, but were covered with cicatricial integument. Projecting from the base of the cranium, so as to rest on the upper part of the back, was a mass which consisted of the cranial hemispheres, small and covered with pia mater.* This mass was partially decomposed when I received the specimen, and I was obliged to remove it. The medulla appeared to be

* In this, and in other respects, the monster resembled a specimen figured in Ahlfeld's 'Missbildungen,' pl. xlviii, fig. 13. In reference to that specimen the author states that, in the comparatively few cases of anencephalus where a distinct trace of the brain is present (as in Dr. Skene's monster), the rudimentary encephalon lies on the back, owing to the characteristic posture of the head.

represented by a Y-shaped tract of nerve tissue, each arm, about one fifth of an inch thick, uniting below with its fellow to form a short flattened nerve, gradually lost on the spinal dura mater. In fact, the cord had become flattened out and atrophied.

The thoracic viscera were healthy, the heart was very large. The cæcum and ascending colon appeared to be included in the mesentery. A distinct transverse, descending, and sigmoid meso-colon existed. The uterus, tubes, ovaries, and vulva were well formed; the anus was distinct and open. The large intestine was distended with meconium. The fingers and toes were perfect. There appeared to be distinct talipes calcaneo-valgus of the right foot, an unusual congenital condition.* On close observation, however, the distortion of the foot was found to be due to extreme flexion of the ankle-joint, increased by the action of alcohol.

Anencephalus is one of the best known of all the forms of monstrosity which occur in the human fœtus. The hideous appearance of the features, the absence of neck, and the open cranial cavity, a well-formed trunk and extremities often co-existing, make an anencephalus very conspicuous. A monster of this kind cannot be overlooked. St. Hilaire has described and figured an Egyptian mummy anencephalus. No doubt the birth of such a monster was once looked upon with superstitious awe. The significance of the general aspect of the head is easy for any anatomist to understand. It is the imperfect development of the upper part of the orbits that gives so ugly an appearance to the face and profile.

Specimens of anencephalus abound in our museums.

* The rarity of talipes and deficiency of the fingers and toes in anencephalus, compared with its frequency in acardiacus acephalus, is noteworthy. In the latter no heart exists, and the extremities are ill-nourished by the feeble circulation derived from the brother twin's heart. In anencephalus that organ is generally large and well-formed. It appears to nourish the trunk and limbs in spite of its necessarily imperfect innervation, a mystery which we may leave the physiologist to solve.

This form of monstrosity must not be confounded with acardiacus. I fully described the latter variety at the January meeting of the Society this year (p. 4). It is developed in one-yelk twin pregnancy; the chief reason why it is often mixed up with anencephalus is because the commonest type of acardiacus is called acephalus. Anencephalus, again, is not identical with perocephalus or simple arrest of development of the head—a condition rarely if ever seen in our species.

Some good descriptions of anencephalous monsters are to be found in our Society's 'Transactions.' Dr. Lloyd Roberts's case (vol. x) closely resembled Dr. Skene's which I show to-night. The drawings (ib. figs. 7, 8, pp. 270, 271) might serve for Dr. Skene's specimen, except that ectopia of the abdominal viscera existed in Dr. Roberts's case. Dr Langston's case, in the same volume, is illustrated by a good woodcut. Mr. Milward's specimen (vol. xiv, p. 140) was an anencephalus; it is described as "acephalus." Dr. Uvedale West (vol. i, p. 107) in describing a case of anencephalus, noted the abundance of liquor amnii, a phenomenon also recorded by Dr. Skene.

Anencephalus has nothing to do with twin gestation. Once it was attributed to adhesion of the amnion to the primordial skull, so that the pressure of the adherent and unyielding amnion interferes with its development. Ahlfeld ('Missbildungen des Menschen') has shown that adhesion of the amnion, not a rare condition, produces distinct facial and cranial deformities, as repulsive as those seen in anencephalus, but of a character essentially different.*

Anencephalus or hemicephalia arises most probably from the rupture of a hydrocephalic skull at about the fourth week. Schlegel figures a case where he found such a skull, just about to burst, in a very early embryo (Ahlfeld, loc. cit., pl. xlviii, fig. 1). Rudolphi figures a case (ibid.,

* The adherent amnion prevents the closing of the embryonal clefts in the face. For an extreme case, quoted by Ahlfeld and others, see "A Curious Monster which lived for some time after Birth," by Dr. W. Ross, 'Trans. Obstet. Soc.,' vol. ix, p. 31, and pl. i.

fig. 2) where the bursting has just occurred, and the remains of the fleshy vault adhere to the base of the skull. The solid cerebral matter rapidly breaks up and disappears, in extreme cases, to be replaced by a mass of cavernous tissue occupying the base of the skull.* A similar disintegration of burst structures is seen in the early stages of ectopia vesicæ, which is believed, according to Ahlfeld, to be due to bursting of the allantois. Mr. Shattock, it must here be noted, traces ectopia vesicæ to quite a different origin.

The base of the skull being freed from the pressure of the cranial contents, its own development undergoes modifications easy to understand. Extreme convexity of the middle part (well seen in the present case at the junction of the basi-sphenoid and basi-occipital), great shortening of the upper boundaries of the orbits, and especial arrest of development of the occiput and the cervical vertebræ, are the main features in anencephalus. They account respectively for the shallow base of the skull, the staring eyeballs, and the absence of neck posteriorly. Some well prepared skulls of these monsters are to be seen in the Teratological Series, Museum of the College of Surgeons.

Thus anencephalus is due to changes which originate entirely within the affected fœtus, quite independently of twin gestation. Acephalus, or, more properly, acardiacus acephalus, is due to changes which originate entirely outside the affected fœtus, and invariably in association with twin gestation.

* Thus Ahlfeld's theory is based on fair evidence. Mr. Bland Sutton traces anencephalus to morbid conditions which prevent the development of the encephalon almost from the first. His theory would not account for cases like the present, where a small, ill-formed brain exists.

A CASE OF PORRO'S OPERATION.

By Alfred Lewis Galabin, M.A., M.D., F.R.C.P.,
obstetric physician and lecturer on midwifery to guy's hospital.

(Received January 30th, 1889.)

On September 16th, 1886, during the absence from town of my colleague, Dr. Horrocks, I received a summons at about 11 p.m. stating that a patient who had been two days in labour, and who was said to have extreme pelvic deformity, was being sent up from Woolwich to Guy's Hospital, and was then on her way. On my arrival at the hospital, I found that she was already there.

The patient, Anne P—, aged 28, had last menstruated on November 29th, 1885, the period lasting three days from that date. She had been married eleven months, and the present was her first pregnancy. Labour came on on September 14th, about a week after the date which calculation would give as the probable full term. She stated that the labour pains had been severe, extending to the back and down the legs, for two days and two nights. The liquor amnii had escaped about twenty-four hours before her admission.

The medical man who was first in attendance appears not to have fully recognised at first the extent of the deformity, probably in consequence of the high position of the promontory of the sacrum. Attempts were made to apply long forceps, but it was found impossible to do so. It afterwards appeared that the scalp of the child had been abraded by the blades. Two other doctors were then called in consultation. It was decided that the contraction of the pelvis was so great that delivery through it would

be very difficult, if not impossible, and it was decided to send the patient off by carriage to Guy's Hospital.

On her arrival she was suffering intense continuous pain in the back and down the back of the legs, but rhythmical uterine contractions had ceased. She was of short stature, and showed evidence of rickets in the shape of bowed tibiæ. She stated that her legs were weak in childhood, and that she could not walk until she was five years old. She had also suffered in childhood from enlarged glands in the neck, and from an affection of her joints which her doctor had considered to be strumous.

The following were the measurements of the pelvis:

Between anterior superior spines of ilia .	9½	inches.
Maximum transverse diameter of crests .	10¾	„
External conjugate diameter . .	6¾	„
Diagonal conjugate diameter . .	2⅝	„

The fœtal head was resting high above the brim. The cervix was fairly, but not quite completely, dilated; the walls of the cervix were very unusually thick. Passing the whole hand into the vagina, it was possible to measure the true conjugate diameter directly, by passing two fingers as far as there was room for them to go. It was found that the available true conjugate, as reduced by the thick walls of the cervix, was only an inch and a half. The bony true conjugate was estimated at about two inches. The cervix could not be pushed up above the brim.

It is worthy of note that the external conjugate diameter was but slightly below normal in comparison with the true conjugate. The diminution of the latter must therefore have been due to great thickness of the sacrum. Moreover, the classical sign of a rachitic flattened pelvis, namely, the altered relation of the transverse measurements between the spines and that between the crests of the ilia, was here absent.

The uterus was found to be somewhat anteverted, and in a condition of continuous action. The pulse was 110—120, but the general appearance and condition of the

patient were fairly good, considering the long duration of labour, and the tetanic condition of the uterus. The urine, however, was found to contain a large amount of albumen, forming a deposit of nearly half its bulk in the test-tube after boiling. Subsequent examination showed that tube-casts were present in abundance, and there were also blood-corpuscles; sp. gr. 1032.

I decided that, even without assuming that the favourable results of modern Cæsarean section justify a great extension of the limits of that operation in comparison with craniotomy, in this case at any rate Cæsarean section would probably give the patient a better chance than the attempt to extract through the pelvis, since the available conjugate was equivalent to the absolute minimum through which it has ever been considered possible to effect extraction. I chose Porro's operation because labour had been already so protracted, and attempts had been made with forceps, which might have caused some bruising to the uterus. There was a chance for the child, as the fœtal heart was audible, though slow and feeble.

The operation was performed at 4 a.m. on September 17th. The carbolic spray was used, in view of the possibility that there might be a special liability to injurious microbes in the hospital air. Ether was given as anæsthetic. The abdominal wall having been divided from a point two inches above the umbilicus to one and a half inches above the pubes, the uterus was incised *in situ*. The uterine wall was unusually thick. No very serious bleeding took place from it, although no elastic ligature was used. The placenta was situated on the posterior wall. The child was extracted by the leg. Some artificial respiration was required to induce it to breathe.

In a former Cæsarean section I had found that a uterus in a condition of continuous action after very prolonged labour was not, as might be expected, ready to retract, but the contrary, and was apt to allow serious hæmorrhage from the placental site. I therefore directed the anæsthetic to be given to somewhat less than the full surgical

degree, hoping so to secure a better retraction of the uterus. This led to the only difficulty of the operation. Just as the child was being extracted there was straining, and a considerable length of intestine became extruded, and exposed to the carbolic spray. It could not be returned until the patient had been brought completely under the ether, and this occupied some little time.

The uterus was clamped with a Koeberle's serre-nœud, and uterus and ovaries cut away. The great thickness of uterine wall rendered the stump very large. It was fixed in the wound by two pins above the wire of the écraseur, no sutures being passed through the peritoneum of the stump.

The patient suffered from a good deal of febrile disturbance for more than two weeks after the operation. She never had any sign of peritonitis, notwithstanding the prolonged exposure of intestines. The urine continued to contain a considerable quantity of albumen, although by the third day the proportion after settling was reduced from one half to one quarter. Both on the second and third day the pedicle was found to be vascular above the constricting wire, and it was necessary further to screw up the serre-nœud to cut off the circulation. Later on, there was some sloughing of the pedicle below the level of the wire, and this appeared to be the cause of the high temperature. It may be accounted for, partly by the very tight constriction which had been found necessary, partly by the constitutional state of the patient, consequent upon the severe nephritis from which she was suffering. Temperature gradually rose till September 21st, when it reached 103°. It continued high till the 26th, when it fell to 99°; but there were occasional sudden rises after this, even so late as October 11th. The fever was treated by large doses of quinine, and by Leiter's ice-water cap placed upon the head.

The stitches were removed from the abdominal wound on September 24th; the pedicle separated on September 27th. By October 4th the proportion of albumen in the urine was reduced to one tenth. The cavity left by the

pedicle did not entirely close up until October 28th. The patient remained extremely anæmic, and on November 4th a swelling appeared below the right nipple. This eventually formed an abscess which was opened on November 15th. There were also some small suppurating ulcers in the right axilla. After this she regained strength and colour, but the urine was still slightly albuminous when she left the hospital on November 30th. The abrasion on the child's scalp healed in about ten days. He did well, and is now living.

The mother's urine was watched from time to time. A year and a half after the operation it was first found to be free from albumen, and it has remained free since. As the albuminuria was so persistent, it was feared that an acute nephritis had ended in producing granular degeneration of the kidney. Two years after the operation the patient states that she does not think that she is destitute of, or has lost, sexual feeling, but that intercourse, which was always more or less painful to her from the first, has been more so since the operation. So far as could be ascertained, this condition appeared to be due to some vaginismus and tenderness of the vaginal outlet, but especially to pressure of the vaginal wall against the projecting sacrum in coitus. She has been advised to come into the hospital again, to see if any treatment would improve this condition, but has not cared to do so.

It was solely on account of the prolonged labour and the probably damaged condition of the uterus that in this case I chose Porro's operation in preference to Cæsarean section according to Sänger's method. I consider that the latter operation had, even at the time of my operation, established it superiority for all cases in which the operation is selected by previous choice, and in which the operator is practised in abdominal surgery, or has even merely had the opportunity of seeing similar operations.

According to Harris's statistics up to August, 1888, in 130 Cæsarean sections according to Sänger's method performed in various countries the mortality was 26·9 per

cent. In sixty-five operations performed in German cities, it was 13·8 per cent. In twenty-three operations performed in America it was no less than 60·8 per cent. But in the last twelve of these it was only 41·6 per cent., showing a decided improvement.* It is remarkable that in Britain, although strong remarks have been made in some addresses and speeches delivered at various times within the last few years on the murderous character of the operation of craniotomy, few cases of Cæsarean section have yet been recorded.

But to learn the mortality of the operation under the most favourable circumstances it is necessary to take the statistics of operations at Dresden and Leipzig, where it was performed more frequently than elsewhere. These give thirty-three operations, with three deaths, a mortality of only 9·0 per cent. They include the results of a considerable number of operators; but all operated in one or other of the two cliniques, in which the operation has been mainly brought to perfection, and had thus had the opportunity of studying it practically.

These results appear to prove not only that Cæsarean section according to Sänger's method is superior to all others forms of Cæsarean section when performed early in labour as an operation of first choice, but that, under similar circumstances, it should be preferred to craniotomy where pelvic contraction is so extreme that there is considerable risk in extracting through the pelvis.

The originality of Sänger's method appears to mainly consist in the application to the uterus of Lembert's intestinal suture, by which the edge of the peritoneum is pierced twice on each side, and in the use of *numerous* sutures, arranged in two sets, deep and superficial. He was not altogether original in insisting on the importance of uniting edges of the peritoneum, or that of including only muscular wall, and not mucous membrane, in the deep sutures. Practical improvements of minor importance

* As quoted by Lusk from private communication, "The New Cæsarean Section," 'Gynæcological Transactions,' vol. xiii, 1888.

are the plan of placing sutures ready to close the upper part of the abdominal wound before the uterus is incised, and that of turning the uterus out of the abdomen to insert the sutures. The expedients of cutting away a wedge-shaped slice of the muscular wall, and that of undermining the peritoneum, to facilitate the turning in of its edges, have been found unnecessary, and have been omitted in most of the more recent operations.

It is difficult to make a fair comparison of Porro's operation with that of Sänger as regards mortality, for of late most operators have considered, as I did in the instance now recorded, that those cases only are suitable for Porro's operation in which labour has been long protracted, or attempts have been made to extract by other means, and which are, therefore, most unfavourable as regards prognosis. In the statistics collected by Dr. Godson* up to 1884, at which time Sänger's method had hardly come into use, the mortality was 56·6 per cent. in 152 operations. Although the results might be expected greatly to improve, it can hardly be supposed that they would compare with the mortality of only 9 per cent. attained by Sänger's operation at Dresden and Leipzig.

Although it seems clear that Sänger's operation is to be preferred when a primary choice can be made, and the operation can be performed by a skilled specialist, there are two other questions which experience does not yet enable us, perhaps, fully to answer. 1. Which operation is preferable if labour has been already protracted? 2. Which should be chosen by a family practitioner if circumstances compel him to perform one, and how far is he justified in selecting one or other of them as an alternative to craniotomy?

As regards the first question, it may be that, in future, Sänger's operation may establish its claim to be regarded as the safer, even in those unfavourable cases in which labour has been already protracted. Thus Lusk† selected

* 'British Medical Journal,' Jan. 17th, 1885.

† "The New Cæsarean Section," 'Gynæcological Trans.,' vol. xiii, 1888.

it in a case of this kind, where the patient had been in labour six and a half days, the membranes having ruptured the day before operation. He scraped away a necrosed decidua with the fingers, and washed out the uterus with a disinfectant. The patient recovered, though she had a very narrow escape, and the pulse for some days varied from 130 to 160.

As regards the second question, it is worthy of note that the mortality of all Sänger's operations, sixty-five in number, performed out of Germany up to August, 1888, is 40 per cent.; that of all operations in America, even excluding those performed before June, 1887, it is 41·6 per cent. It is clear, therefore, that unless the general results are found greatly to improve as time goes on, some caution should be used in recommending the operation to practitioners in general as an alternative to craniotomy, except in very severe degrees of pelvic contraction. The mortality of craniotomy, since modern improvements in antiseptic midwifery, ought to be very slight indeed in flattened pelves having a conjugate exceeding two and a half inches. And, when deaths do occur, it is probable that they are rather attributable to efforts made to extract a living fœtus by forceps or version than to the craniotomy itself. Thus, in the last report for twelve years of the Guy's Hospital Lying-in Charity, out of 23,591 deliveries, from 1863 to 1875, there were eighteen cases only of craniotomy. The mortality of these was 6, or 33·3 per cent. But in none of the fatal cases was there a conjugate diameter less than about three inches, and probably, therefore, in none of them, even at the present day, would Cæsarean section have been decided on as a primary choice. All the patients who had the more extreme contractions of the pelvis recovered.

I do not therefore consider that, as yet, either Sänger's or Porro's operation should be recommended as an alternative to craniotomy with a pelvis exceeding two and a half inches conjugate diameter, unless there is marked transverse contraction as well.

If a family practitioner does undertake Cæsarean section, there are certain advantages in favour of Porro's operation as compared with Sänger's which may turn the scale when labour has already been protracted, and when there is therefore an advantage in removing the possibly already damaged uterus. The operation is easier and much shorter. It is not necessary to have a Koeberle's serre-nœud, but the pedicle may be constricted by india-rubber tubing, as in the method of hysterectomy described in Hégar and Kaltenbach's 'Gynæcology.' It is easy to improvise a pin to transfix the pedicle above the wire. A knitting-needle, as suggested by Mr. Lawson Tait, would answer the purpose.

The uterus removed in the case now recorded was shown to the Society when fresh. Unlike most specimens of the Porro uterus, the placenta does not remain entirely adherent, but is partly detached, and that detachment is at the lower border. This circumstance appears to me to favour the view that the normal detachment of the placenta is due partly to detrusion by the uterine action, in addition to shrinking of the placental site, and to be against the theory lately put forward by Dr. Berry Hart, that detachment is due to *expansion* of the placental site in the third stage of labour during the interval of pains. For the shrinking of the placental site will cause a radial strain on the attachment of every point on the placenta, the strain increasing from centre to circumference. If to shrinking of the placental site is added detrusion of the whole placenta by uterine contraction, the strain on points on the upper margin will be relieved, and that on points on the lower margin will be increased by the same amount. Hence the lower margin will be separated first, as happened in the present instance.

It is obvious that detrusion must be much interfered with by the incision in the anterior uterine wall. Hence, perhaps, the reason why the placenta generally remains attached to the Porro uterus. It may be that separation

had commenced in the present specimen, because the uterus was unusually thick and strong.

Dr. Matthews Duncan, agreeing thoroughly with the general tenor of Dr. Galabin's paper, regarded it as novel and likely to prove disadvantageous to introduce into questions of treatment variations according to the grade of the practitioner. Meantime at least, and probably for a long time to come, it is best to consider and decide on what is the proper treatment by the best practitioner, leaving variations in any particular case to be decided by the good sense of the practitioner in immediate attendance. The great successes of Porro and of Sänger and Leopold had naturally opened up grand prospects for the obstetrician, not only in lessened mortality of Cæsarean section, but still more in avoidance of craniotomy. For more than a generation obstetricians had been hoping for the avoidance of craniotomy, and much vain sentimental talk had been expended on the subject. But craniotomy held its place still, because it was still much safer to the mother than any form of Cæsarean section. Now, however, a real ground of hope showed itself, and this hope all trusted would soon come to realisation. The hope rested exclusively, at present, on the still further reduction of the mortality of Cæsarean section. That reduction might soon come, and expel the horrid craniotomy from our work. In his zeal to reach the goal, Leopold had introduced into medical morals a new factor in the decision of questions of treatment, namely, the wish or opinion of mother, husband, and friends. He (Dr. Matthews Duncan) regarded this wish or opinion as absolutely powerful negatively. They might say "No" to any operation, but they had no voice in advising or deciding what should be done. Were it so, medicine and surgery would be launched at once into chaos; thus most injurious proceedings might get justification. The surgeon decides what operation should be done and how it should be done. The patient may adopt the advice or may refuse it. She has no place in giving the advice or modifying its essentials. Leopold defended his substitution of Cæsarean section for craniotomy in some cases on the ground of the wish of the mother and husband and friends, and such defence could not be sustained. He (Dr. Matthews Duncan) hoped that soon his friend Leopold would need no such argument, and be able to say, Cæsarean section is more successful, in respect of maternal mortality, than craniotomy; and he believed that the time was not far off.

Dr. Herman quite agreed with Dr. Galabin and Dr. Duncan as to the far greater safety for the mother of craniotomy than Cæsarean section. Dr. Galabin had quoted the results of Cæsarean section in those lying-in hospitals in which it had been

brought to the greatest perfection, as data from which conclusions as to its risk might be drawn. He (Dr. Herman) thought that, in order that the comparison might be a fair one, the mortality of craniotomy should also be estimated from cases operated on under the most favourable circumstances. He therefore called attention to the results of craniotomy in the Berlin Lying-in Institution, given in a paper by Wyder ('Arch. für Gyn.,' Band xxxii). This showed the at first sight surprising fact that after craniotomy in the slighter degrees of pelvic contraction the mortality was greater than in cases of high degrees of deformity. This was because in the slighter cases craniotomy was only done after the patient's strength had been exhausted and her tissues injured by delay and attempts at delivery in other ways. In the cases of greatest deformity, where the impossibility of delivering a living child was recognised from the first, and craniotomy done early by a skilful operator, and with all proper precautions, the mortality was *nil*.

Dr. Aust Lawrence (Clifton) remarked on the importance of obstetric physicians performing abdominal operations generally, as they then were in the best position to meet the emergency which had been so successfully faced by Dr. Galabin. He also laid great stress on the early and thorough examination of the pelvis by the hand in all cases requiring instrumental aid, as frequently an obstacle could be recognised which the forceps could not overcome, and in which it should not be tried. If an obstacle to delivery by forceps is recognised at a comparatively early stage of labour, then craniotomy or its alternatives could be performed with a very good chance of success. Dr. Aust Lawrence considered that the great mortality in craniotomy cases and in Cæsarean section by Porro's operation was mainly due to futile attempts to delivery by other means having been tried for too long a time, the patient becoming exhausted.

Dr. Galabin said he was glad to have Dr. Herman's confirmation of his own observations that the mortality of craniotomy chiefly occurred in those cases of slight contraction in which an effort was made to save the child, and that, short of very rare and extreme forms of distortion, there was hardly any mortality in the more difficult cases. With regard to Dr. Matthews Duncan's criticism of his mention of family practitioners, he had no intention to suggest that anyone should be called upon to take any other course than that which he himself considered best. In point of fact, he should himself adopt exactly the treatment which he recommended. But he considered that it did make a great practical difference to a serious operation whether it could be performed with all hospital facilities or only in a small, incommodious, and perhaps insanitary house. And he certainly considered it a wise course which many practitioners adopted, when certain rare and difficult operations were called

for, to send the case to a hospital rather than operate themselves. He agreed in the main with Dr. Duncan's remarks on the ethical side of the question, especially as regards the paramount importance of the mother's life in comparison with that of the child. But where the risk of the two operations appeared to be almost evenly balanced, he did think that a certain regard should be paid to the life of the child, and even that, in such a case, the wishes of the mother and her husband should be taken somewhat into account.

Annual Meeting.

The audited balance-sheet of the Treasurer (Dr. Galabin) was read; its receipt and adoption were moved by Dr. Graily Hewitt, seconded by Dr. Cleveland, and carried unanimously.

The report of the Honorary Librarian (Dr. Horrocks) was then read; its adoption was moved by Dr. J. Watt Black, seconded by Dr. Cullingworth, and carried *nem. con.*

Report of the Honorary Librarian.

"During the past year 144 additions have been made to the volumes in the Library. These are made up as follows:—Eighty-three books, of which 46 were by donation, and 37 by purchase; 3 volumes, containing 41 pamphlets, of which 24 were given and 17 bought; 58 volumes of periodicals. The total number of books in the Library now amounts to 4004.

"A manuscript copy of Wolveridge's 'Speculum Metricis, or the expert Midwives' Handmaid,' containing beautiful etchings, was presented during the year by J. Lee Jardine, Esq. It is a most valuable addition to the Library, and the original copy, which is dated 1669, has been since presented by the same donor to the Royal College of Surgeons.

"The third or back room has been furnished as a Committee room, so that meetings can be now held without interfering with the ordinary use of the Library.

"The number of Fellows who have used the Library during the past year has increased, and this has been the case especially with writers of papers who wished to look up works of reference.

"P. Horrocks."

BALANCE-SHEET OF THE OBSTETRICAL SOCIETY OF LONDON.

(Abstract of the Receipts and Expenditure for the year ending December 31st, 1888.)

1888. RECEIPTS.	£	s.	d.
To balance from 1887	387	11	8
(1) 665 Annual Subscriptions at £1 1s., realising	698	3	11
(2) 8 Composition Fees at £10 10s.	84	0	0
(3) Midwives' Examination Fees	141	15	6
(4) Sale of 'Transactions' and 'Rules for Infant Management' (Longmans) . . 77 16 6			
Do. do. (Society) . 16 17 6—	94	14	0
(5) Interest on Consols and Bonus on Conversion	63	6	10
Amount of Stock, 2¾ per Cent. Consols, standing in the names of the Trustees . . £1800 0 0			
	£1469	11	11

1888. EXPENDITURE.				£	s.	d.
By (1) 'Transactions,' Vol. XXIX, Printing, Lithography, Paper, Binding, Index, and delivery of Volume				350	7	0
(2) Library:						
Books Purchased and Binding				50	0	1
(3) Museum and Library:						
Rent	£100	0	0			
Librarian, Salary and Commission	179	7	6			
Library Fittings, Repairs to Furniture, Cleaning, Coals, Gas, &c.	37	11	7			
Petty Disbursements	1	16	5—	318	15	6
(4) General Meetings and other Expenses:						
Contribution for use of Meeting-room	£46	4	0			
Expenses of Meetings	29	14	2			
Stationery and Postage	49	0	1—	124	18	3
(5) Examination of Midwives:						
Fees to Examiners	£74	1	8			
General Expenses	30	4	5—	104	6	1
(6) Extraordinary Expenses:						
Legal Charges *re* 54, Berners Street				2	15	6
(7) Banking Expenses:						
Commission, Stamps, Cheque Book, &c.				0	8	2
Purchase of Consols, £100				97	5	0
Balance at Bank	£433	17	10			
Less Cheque not presented	13	1	6—	420	16	4
				£1469	11	11

Audited and found correct,

(Signed) F. H. CHAMPNEYS, M.D.
JOHN PHILLIPS, M.D.
M. PRICKETT, M.D.
HERBERT R. SPENCER, M.D.
PERCY BOULTON, M.D.

The report of the Chairman of the Board for the Examination of Midwives (Dr. J. Watt Black) was read, after which its reception and a vote of thanks to the Chairman and Board of Examiners was moved by Dr. J. Braxton Hicks, seconded by Mr. Arthur Roper, and unanimously carried.

Annual Report of the Board for the Examination of Midwives.

"During the year 1888 there have been 149 candidates examined by the Board. Of these 127 passed and 22 were rejected. This gives a percentage of 14·7 failures, or a proportion of 1 in about $6\frac{4}{5}$.

"The number of candidates continues to increase from year to year, having risen from 125 in 1887 to 149 in 1888. The number examined from 1872 to the end of last year is 747, and the number rejected 129, or about 17 per cent. The total number of diplomas granted by the Society up to the end of 1888 amounts to 618.

"Last February the Council received a complaint of the conduct of a midwife who held the diploma of the Society. Having doubts as to their jurisdiction, the Council appointed a Committee, with power to take legal advice, to inquire into the position of the Society towards the midwives who have obtained its diploma. The Committee drew up certain questions and submitted them to the solicitor of the Society for his opinion. The solicitor held that the Society possessed the right to strike a midwife's name off its register, but that, having made no contract with the midwives, it could not in any case require the surrender of the diploma. The Council and the Committee considered the question at various subsequent meetings, and the Council resolved that in future all successful candidates for the diploma should be required to sign a declaration or sponsio, in a book to be kept for that purpose. In this declaration the midwife agrees to submit to the jurisdiction of the Council in all matters relating to

her conduct as a midwife, and to give up her diploma if the Council shall consider her conduct such as to render her unworthy to hold it. In order to keep the midwives mindful of their obligations, it was further resolved that the declaration should be placed on the face of the diploma itself, immediately over the midwife's signature.

"It also appeared to the above-mentioned Committee and to the Council that the regulations for the examination of midwives stood in need of revision. Those regulations have accordingly been amended by the Council.

"On behalf of the Board,

"J. Watt Black,

"*Chairman.*"

The Scrutineers retired, and on their return the President declared the result of the Ballot for officers and Council for the ensuing year:

President.—Alfred Lewis Galabin, M.A., M.D.

Vice-Presidents.—George B. Brodie, M.D.; Francis Henry Champneys, M.A., M.D.; William Frederick Cleveland, M.D.; A. E. Aust Lawrence, M.D. (Clifton); George Roper, M.D.; William Stephenson, M.D. (Aberdeen).

Treasurer.—G. Ernest Herman, M.B.

Chairman of the Board for the Examination of Midwives.—James Watt Black, M.D.

Honorary Secretaries.—Percy Boulton, M.D.; Alban Doran.

Honorary Librarian.—Peter Horrocks, M.D.

Members of Council.—Robert Boxall, M.D.; Albert Charles Butler-Smythe, M.R.C.P.Edin.; William Duncan, M.D.; W. Radford Dakin, M.D.; S. Houston Davson, M.D.; Henry Gervis, M.D.; Robert Alexander Gibbons, M.D.; Frederick B. Hallowes (Redhill); Montagu Handfield-Jones, M.D.; Edwin Hollings, M.D.; Jamieson Boyd Hurry, M.D. (Reading); Arthur H. N. Lewers, M.D.; George Lowe (Burton-on-Trent); Oliver Calley Maurice (Reading); Thomas Cargill Nesham, M.D. (Newcastle-on-

Tyne); Edward James Nix, M.D.; John Phillips, B.A., M.D.; Henry Speakman Webb (Welwyn).

The President then delivered the Annual Address.

ANNUAL ADDRESS.

Gentlemen,—I have again to congratulate you upon the satisfactory state of your Society.

Our diploma for midwives is sought by a continually increasing number of candidates. During the past year 149 women have presented themselves for our examination, of whom 127 passed, raising the whole number upon the Register to 618.

The number of volumes in the Library amounts now to 4004, 144 having been added during the year.

The total number of Fellows on December 31st was 746. Thirty-seven new Fellows were elected during the year, while 31 were lost by resignation and erasure, and 11 by death.

The Fellows removed by the hand of death were: John Stuart Hutton, M.B.; Walter John Bryant, F.R.C.S.; Hugh Miller, M.D.; Arthur Cresswell Rich, M.D.; John Bickwill, M.R.C.S.; Isaac Harrison, F.R.C.S.; William Nicholson Price, M.R.C.S.; John Chalmers, M.D.; Edwin Jackson, M.B.; Philip Addis, M.R.C.S.; Thomas Boyle, M.R.C.S., and Joseph Frederick Eyeley, L.R.C.P.

John Stuart Hutton died, according to our ideas, at too early an age—five and twenty—for one who had shown ability and capacity for work, for from his career as a student a bright future might not unreasonably have been anticipated for him had he lived. He was born at Harrogate in 1863, and educated at the Tonbridge School. He

entered at St. Thomas's Hospital in 1880, and obtained the Entrance Scholarship in Science. He was a distinguished student of the school and graduated M.B. in honours in the University of London in 1886. In the following year he was appointed Medical Officer to the hospital in George Town, Demarara—the home of yellow fever. His health broke down and he was about to return to England, but while on a trip up country he was attacked with yellow fever and succumbed on 6th February, 1888.

Walter John Bryant, F.R.C.S. and M.R.C.P., was an Original Fellow of the Society. He died at his residence —High Woods, Reading—at the age of seventy-six. He was born in 1813 and was apprenticed to his father, who was in practice in the Edgware Road. In 1834 he entered at University College and afterwards joined his father. In 1840 his father retired from practice, and Mr. Bryant removed to Sussex Square ; and he had a large practice in Bayswater for many years. In 1870, finding himself unequal to the calls made by his connection, he took up his residence near Reading, coming up to town three or four days a week. This he continued to do until the end of his life. He was Surgeon to the Bucks Yeomanry and Consulting Physician to the Hospital for Incurable Children.

Hugh Miller, M.D., graduated in Glasgow in 1864. He held a prominent position as an Obstetric Physician in that city. He was for some years Obstetric Physician to the Glasgow Maternity Charity, and was Consulting Physician to that institution at the time of his death. He was the author of several papers on subjects in obstetric medicine which were published in the medical journals.

Arthur Cresswell Rich, M.D., died on May 15th at the early age of thirty-one. He was educated at the Liverpool School of Medicine and at St. Thomas's Hospital, and graduated in honours in the University of London. He was afterwards appointed House Surgeon, and subsequently Pathologist, to the Liverpool Royal Infirmary, and his work in both these offices is spoken of in terms of high praise. Dr. Carter states that he was a man of quiet and

unostentatious piety, ever anxious during his short and busy life to help in any good work.

William Nicholson Price, M.R.C.S., was a leading practitioner in Leeds, and devoted more especially to the cultivation of obstetric medicine. He was the son of a naval surgeon who had taken an active part in founding the Leeds School of Medicine. He was educated at this school and at the Middlesex Hospital. He was elected a lecturer in the Leeds Medical School in 1857, and in 1863 became Lecturer on Midwifery, then in conjunction with Mr. Samuel Wright. From this post he retired in 1884. He took great interest in the school, was for some time secretary to it, and twice its president. He was also a liberal donor to it. He was an active member of the Council of the Leeds Philosophical Society until his death, which took place on June 25th.

Edward Jackson, M.B., died at Newcastle-on-Tyne at the age of sixty-two. He was born in Sheffield, and educated at University College, London, where he was knowu as an able student devoted to clinical work. He graduated in the London University in 1851, and became a Member of the Royal College of Surgeons in 1853. He then settled in Sheffield, where he devoted himself more especially to obstetric medicine, and soon became the recognised leader in this branch. He cultivated the surgical side of gynæcology when this was less recognised than it is now, and published papers on vesico-vaginal fistula and ovariotomy. He was active in founding the Sheffield Hospital for Women, to which he was surgeon for many years.

Dr. John Chalmers died at his residence in Keppel Street on November 9th. He was a student of the University of Glasgow, and like many others of Scotland's successful sons he had a hard struggle to obtain that education which he coveted. During his student days he was obliged to earn by literary and other work the means of living and of educating himself. He graduated M.B. in 1867, and then spent some time as an assistant to a

practitioner in Yorkshire. Thence he removed to London, and settled in Stoke Newington, but subsequently removed to the north-western district, where he continued to practise until his death. In the course of his practice, while attending a case of labour, he was poisoned in his finger, and from the effects of this it appears that he never quite recovered.

A writer in the 'Lancet' says of him, "To those who knew him well there was a peculiar charm in Dr. Chalmers' character. His information was most varied, and, when he chose, he could talk in a way which made him a delightful companion, for he had a considerable fund of that somewhat grim humour which is so marked a trait in the Scottish people." For some years he had been engaged in making observations on certain points connected with vaccination. He died of septicæmia, acquired in all probability indirectly through the practice of his profession.

During the year the work done in the Society has been large and of exceptional interest and excellence. Much of it is markedly original in character, pursued on strictly scientific lines, and tending to correct views of ætiology and practice which have hitherto been thought to be established on a sound basis. Much of it has an immediate bearing on the daily conduct and practice of everyone engaged in the pursuit of obstetric medicine. Among such I may mention Dr. Boxall's papers on "Scarlatina in Pregnancy, Labour, and the Puerperal State," and on "Mercurialism in the Lying-in State;" that of Dr. Herman and Dr. Fowler "On the Effect of the Administration of Ergot on the Involution of the Uterus;" that of Dr. Donald on "Methods of Craniotomy;" the discussion on Electrolysis; and Dr. Phillips's paper on the "Value of Pilocarpine in Pregnancy, Labour, and the Lying-in State."

Others are concerned with the rarer events which occur in practice such as Dr. Lewers's paper on "Extirpation of the Uterus for Cancer;" those of Dr. Champneys on "Vesico-uterine Fistula;" of Dr. Matthews Duncan and Mr. Meredith on "Locked Fibroids," and of Dr. Cullingworth on

"Extra-uterine Fœtation;" while others are of a purely scientific character, as that of Mr. Bland Sutton on the glands of the Fallopian tubes, and that of Mr. Alban Doran on myoma and fibroma.

Many specimens—some of which were of great interest—were shown. Mr. Sidney Harvey showed a rare specimen of interstitial pregnancy; Dr. Griffith, myxoma fibrosum, glands of the Fallopian tubes, acardiacus acephalus; Dr. Cullingworth, a large cyst (probably hydatid) behind the uterus, and localised sloughing of the fundus uteri due to acute septicæmia; Dr. John Phillips, congenital sarcoma; Mr. Doran, glandular structure in the substance of a primary cancer of the Fallopian tube; and, in conjunction with Mr. Trestrail, acardiacus mylacephalus.

Dr. Boxall's observations were made under peculiarly advantageous conditions; conditions which were non-existent a dozen years ago, conditions which rendered it comparatively easy to eliminate the common sources of error, which often render it so difficult to discover the cause of puerperal fever in a given case, and the relation of the disease to other acute diseases; for they were made in a lying-in hospital from which puerperal fever had been practically banished.

It is almost superfluous to state that no inferences of any value can be arrived at with regard to the relation of puerperal fever to scarlet fever, except under conditions in which puerperal fever arising from other causes than scarlet fever can be excluded. These conditions were present when Dr. Boxall carried on his observations, and this is one of the reasons why so great a value must be attached to his work.

Another reason why a high estimate should be placed upon it is that the cases which came under his observation were watched throughout the whole of their course, and followed until they had completely recovered. Very few cases so fully observed have been placed on record.

In addition to the record of cases, these papers contain discussions on several important questions, such as the

Liability of Pregnant and Parturient Women to Scarlatinal Infection and the Duration of the Incubation Period; the Relation of Scarlatina to Menstruation; Clinical Course of Scarlatina during Pregnancy and in the Puerperal State; Effect of the Scarlatinal Poison on the Course of Labour and the Puerperium, and on the Mammary Secretion; and the Clinical Relation of Scarlatina to Puerperal Septicæmia. The conclusions arrived at by Dr. Boxall are too many for me to even enumerate, but there are three of them which I must mention:

1. That the agency of scarlet fever as a cause of puerperal fever has been greatly over-rated.

2. That scarlet fever breeds true in the pregnant and puerperal woman; that it produces scarlet fever which runs the ordinary course of that disease, and not puerperal fever.

3. And incidentally the priceless value of antiseptics in midwifery.

This work has been carried out on a strictly scientific method, and any future work on this subject, to be of any value, must be carried out on similar lines. It should be noted that soon after Dr. Boxall's papers were read before the Society, a monograph on the same subject was published by Dr. Meyer, of Copenhagen, in which conclusions similar to those of Dr. Boxall were arrived at.

In the paper on the "Conditions which favour Mercurialism in Lying-in Women," Dr. Boxall concludes that absorption may take place on the inner surface of the uterus, as well as from lacerated surfaces in the cervix, vagina, or perinæum, and indeed on the intact mucous membrane. The means which he suggests for the prevention of mercurialism is closure of lacerations, care that none of the injection be allowed to remain in the passages, and the promotion of elimination through the kidneys by the administration of diluents, and through the intestines by the administration of saline aperients.

Drs. Herman and Fowler made observations on two series of puerperal women in the General Lying-in Hos-

pital. To one set of cases ergot was administered three times daily for a fortnight after labour; to another set one dose only was given after labour. They found that the uterus diminished in size more rapidly in those to whom ergot was administered three times a day than in those to whom one dose only was given. They found, further, that the administration of ergot had no appreciable effect on the duration of the lochia.

Dr. Donald's paper on "Methods of Craniotomy" is of great interest and value. He discussed the method of craniotomy to be preferred: (1) in the less marked degrees of pelvic contraction; (2) in cases in which the contraction is considerable. In the first class of cases he appeared to prefer to apply the axis-traction forceps, to perforate the skull while the forceps is in position, then to screw the blades of the forceps as tightly as possible so as to obtain a firm grasp of the head, and to deliver by its means. But it is in the method he advocated under the second class of cases, that is, when the contraction is considerable, that his views are novel and subversive of practice that was thought to be well established. Under these circumstances he recommended podalic version and extraction of the body; perforation of the after-coming head through the roof of mouth; cephalotripsy; and the extraction of the head by means of the cephalotribe, and traction on the body and jaw, combined with supra-pubic pressure. The advantages he claimed for it are that the base of the skull is well broken up, the head is well fixed during perforation and crushing, the position of the head can be easily altered so that the cephalotribe can be applied to different diameters of the head, and the collapse and moulding of the head is more readily brought about by traction on the jaw and body of the child and pressure above the pubes. The cephalotribe when used to crush the base of the skull in vertex presentations has proved somewhat disappointing, and the method proposed by Dr. Donald appears to render the instrument more efficacious in this respect, and deserves a careful trial.

The discussion on electrolysis was introduced by four papers by Dr. Steavenson, Dr. Lovell Drage, Dr. Gibbons, and Dr. Shaw. It occupied two meetings, the second being an extra meeting especially called for the adjourned discussion. The subject was warmly debated, and great differences of opinion as to its value were expressed.

Dr. John Phillips read an elaborate paper "On the Value of Pilocarpine in Pregnancy, Labour, and the Lying-in State." After an exhaustive inquiry Dr. Phillips arrived at the conclusion that the drug has no special value in these conditions.

Dr. Lewers read a report of a case of total extirpation of the uterus for cancer. The patient lived sixteen months after the operation, and Dr. Lewers thought that the operation had prolonged the patient's life, and she certainly had had ten months of freedom from suffering.

Dr. Champneys described a new operation which he had performed for the cure of utero-vaginal fistula, which will probably prove easier in its performance and more certain in its results than the old operation for this lesion. Mr. Matthews Duncan described and defined a rare condition—the locking, retroversion, and strangulation of fibroid tumours in the pelvic cavity, and Mr. Meredith read a case in which a locked fibroid had been successfully removed by operation.

Dr. Cullingworth described a case of extra-uterine fœtation in which secondary abdominal section had been performed.

The work, of which I have given a brief summary, is such as any Society may well be proud of, for it is work of permanent value, which extends the boundaries of our knowledge, enlarges the domain of science, and increases our power of doing good. No one could occupy the chair at meetings where such work was done without legitimate feelings of pride and pleasure.

In vacating the chair in favour of Dr. Galabin, whom you have elected this evening as your President, I vacate it in favour of one who is qualified to preside over your

meetings by learning, ability, and practice, and I feel that in his hands the dignity of this chair and the interests of the Society will be thoroughly maintained.

In conclusion, I would express my thanks to the Honorary Secretaries,—to Dr. Boulton for the great help which he has given me, and the solicitude which he has shown for the well-being of the Society; to Mr. Doran, not only for his assistance but also for the readiness with which he has acceded to and carried out my least wish. To have been associated with Dr. Champneys—the late Senior Secretary—whose devotion to the interests of the Society cannot be adequately known except to those who have worked intimately with him—is a privilege which I shall always prize, and I can wish no greater boon to the Society than an uninterrupted succession of such officers imbued with unselfish devotion to its interests.

Dr. Matthews Duncan felt that it was quite unnecessary to say anything with a view to recommend to the meeting the motion which he had the honour to propose, so well known and so highly esteemed by all was their President, Dr. John Williams. His position as a medical practitioner was among the highest and best. In this hall his position as a man of science was of more importance, for the Society was devoted to the advancement of obstetrical and gynæcological science, and the many contributions of Dr. John Williams, valuable in themselves, were marked by the adherence to true scientific method. They showed the real scientific spirit; and without scientific method followed in a scientific spirit contributions had better not be made at all, not even attempted. What Dr. Williams was as the President of the Society and Chairman of our meetings they all knew by experience. His urbanity, wisdom, and firmness could not be excelled. But, above all, he was a great and good man. In him you had fine manhood (*virtus*), and without that quality of manhood, great practice, greatness in science, excellence as a president, were poor and of small utility. He proposed "that a vote of

thanks be given to Dr. John Williams for his very excellent address, with a request that he would allow it to be printed in the next volume of the 'Transactions,' and further thanks for the very efficient way in which he had presided over the meetings of the Society during his term of office."

Dr. Champneys said that the terms in which Dr. Matthews Duncan had proposed this vote left little for him to do. Still, as one who had had the honour as well as the pleasure of serving under Dr. John Williams in a subordinate capacity—that of Secretary—he had something to add. No one who had not acted in this relation to Dr. Williams could have any idea of the devotion to the best interests of the Society, of the unselfish work, of the mastery of details, which had characterised his whole career in the Society. No society ever had a more admirable President, and he viewed his inevitable retirement from the chair with sincere regret. He begged most cordially to second the vote of thanks to the retiring President, Dr. John Williams.

The vote was carried with enthusiasm.

Dr. Playfair had great pleasure in proposing a vote of thanks to the retiring Treasurer, Dr. Galabin. He might, under other circumstances, have offered his condolence to the Society on losing his valuable services in the thankless office he had so long ably filled, but, knowing that he is only changing it for one more honourable, which he was sure to adorn, he would content himself with a merely formal statement of the motion entrusted to him.

The motion was seconded by Dr. Aust Lawrence, and carried.

Dr. Herman proposed a vote of thanks to the retiring Vice-Presidents, and other Officers of Council. He said that it was not possible for the business of the Society to be carried on without the punctual and regular attendance of Members of Council. For their attendance, which was,

no doubt, often at some inconvenience to themselves, and for their careful consideration of the matters coming before them, the thanks of the Society were due to the retiring Vice-Presidents and Members of Council.

This was seconded by Dr. HORROCKS, and carried *nem. con.*

MARCH 6TH, 1889.

ALFRED L. GALABIN, M.D., President, in the Chair.

Present—54 Fellows and 1 Visitor.

Books were presented by Dr. Matthews Duncan, the Middlesex Hospital Staff, and the St. Thomas's Hospital Staff.

Arthur H. W. Clemow, M.D.; Leonard Remfry, L.R.C.P.Lond.; and Ernest Solly, M.B.Lond, F.R.C.S., were admitted Fellows of the Society.

William Henry B. Brook, M.B.Lond. (Lincoln); Charles B. Humphrys, L.R.C.P.Ed. (Bournemouth); and Robert Reid Rentoul, M.D. (Liverpool), were declared admitted.

The following gentlemen were elected Fellows of the Society:—Matthew Benson, M.D.Brux., L.R.C.P.Lond. (Wigan); Jehángir J. Cursetjee, L.F.P.S., and L.M. & S.; Charles Arthur Goullet, L.R.C.P.Lond.; and John Wayte, M.A., M.B., B.Ch.Oxon. (Croydon).

The following gentlemen were proposed for election:—William Carnegie Brown, M.D.Aber. (Penang); Frederick Hall, M.D.St.And. (Leeds); and Henry Douglas Johns, L.R.C.P. (Boston).

DENTIGEROUS BONY PLATES FROM A DERMOID OVARIAN TUMOUR.

By Alban Doran.

The upper plate, as the specimen is mounted, forms a crescentic sheet of porous bone measuring two and a half inches from tip to tip. One half is thicker and more irregular in outline than its fellow. This plate contains nine teeth, resembling molars in form; some consist only of crowns, few have perfect roots. The way in which they are inserted differs greatly. Some lie with their crowns almost covered with bone, others are placed at the extreme edge of the plate, with long roots yet hardly any socket. Other teeth were attached to the plate by integument only, when the specimen was fresh. Teeth with sockets of flesh are frequent in dermoid cysts.

The lower plate forms a very irregular mass. The inferior portion is highly cancellous, resembling a tarsal bone; the upper is a spiky piece of porous but hard bone, such as is seen in the normal cranium of a cod or salmon. The greater part of the entire plate is studded with teeth, mostly like large molars, but a few resemble bicuspids, and at least one is an incisor. Some are buried in the bone.

This specimen is exhibited for two reasons. In the first place, the presence of bone was readily diagnosed during life. The patient was twenty-six years old, and the tumour had existed for three years. It was almost solid, and the bony plate placed uppermost in the specimen could be plainly felt through the abdominal walls, forming a hard crescentic ridge arching over the umbilicus. On first touch it suggested disintegration of fœtal bones after ectopic gestation, but there was a history of twisting of the pedicle, and the tumour and pelvic condition indicated dermoid cyst. On January 25th I removed the tumour. A very long abdominal wound had to be made, and numerous

omental adhesions required ligature; otherwise the operation presented no difficulties. The pedicle was twisted. The opposite (left) appendages were healthy. The patient made a good recovery.

The other purpose for which I exhibit the specimen is to demonstrate how easily these beautiful masses of bone and teeth may be prepared, at little cost of time. I operated in the morning; at three o'clock I began to prepare the specimen, and by four it was practically ready for mounting, although I took a further precaution. In preparing the bones I followed Dr. Junker's plan described in Sir Spencer Wells's book, 'On Ovarian and Uterine Tumours,' edition of 1882, page 43, with simplifications. The soft parts were first roughly cut away, and the periosteum raised at two or three points. Then the bones were placed in boiling water containing one drachm of commercial hydrochloric acid to the pint. After lying in the water (which was not kept boiling) for a quarter of an hour, the bones were taken out and placed under a gentle stream of cold water from a tap for the same space of time. The soft parts were then removed with ease. The bones were next placed in a saucepan, and boiled in a solution of caustic potash (one drachm to the pint of water) for a quarter of an hour. When taken out they were put under the tap again for a few minutes; then I washed them with Hudson's paste placed on a nailbrush. At the end of an hour after I began to prepare the bones they were ready to mount. I let them lie in absolute alcohol till the next morning, but now I do not think that was necessary.

The greater part of the above process can easily be done by a porter or other assistant. No tedious dissecting off of the periosteum is necessary if it be treated in the way just indicated, so as to let the water and chemicals get to the bone. The soft parts can be pulled off with the fingers or forceps in two or three minutes. The specimen belongs to the Museum of the College of Surgeons.

INAUGURAL ADDRESS.

Gentlemen,—My first duty is to thank you heartily for the honour which you have done me in electing me as your President—the greatest honour which can be conferred upon an obstetric physician. I enter with diffidence upon the duties of an office my predecessors in which have been such distinguished men, and such successful Presidents; and trust only that, if there be any shortcoming on my part, the Society may not be the sufferer.

In evidence that our Society has never occupied a more prosperous position than at present as regards the number of its Fellows, I need only recall the fact that, during the four years of my treasurership which have just elapsed, its funds have increased by as much as £600, while during that time it has published the most valuable and costly volume of 'Transactions,' from the number of its lithographic plates, which has ever appeared. The activity of its Fellows in scientific work has been no less manifest both by the quality of the papers contributed, and by the necessity, which has arisen for the last two years, for holding extra meetings in order that no papers might remain unread.

Of the two branches of medicine which form the main field of our Society's work—midwifery and the diseases of women—midwifery has for many years been furthest advanced on the way toward scientific perfection. A large part of its province has to do with questions of mechanics, which are both readily open to observation and experiment, and can in some measure be decided by rigorous mathematical deduction. Gynæcology, on the

other hand, has been a field for conflicting opinions, for theories often accepted without adequate proof, and for changing and evanescent fashions of treatment. It is in the diseases of women, therefore, that the greatest activity of work and the greatest progress of discovery might be, if not expected, at any rate desired. Nevertheless, it must, I think, be said, on a fair review of the work of the last few years, that midwifery has made even more striking advances than gynæcology. In one of the most notable of these Germany has taken the lead; I mean in the revolution which has taken place with regard to Cæsarean section. Only about six years ago the mortality of Cæsarean section was variously estimated at from 70 to 90 per cent. It even appeared that its mortality had actually increased as years went on, a result which could only be explained by supposing that operators were less bold than formerly in undertaking timely operations. Moreover, of the few who survived the operation, the majority were women living in the country. Comparatively few cases were successful in great cities, or in the hands of eminent obstetricians or surgeons. It appeared as if only country robustness could face so great a risk. Not many years before, an unusually successful operator, for that time, had contended that it was wrong to place sutures in the uterine walls at all, and that the uterus, in virtue of its contractile properties, would writhe until it got free from whatever sutures could be applied.

Now, the improved Cæsarean section, as performed under the most favourable circumstances at Dresden and Leipzig, shows a mortality over the whole series of only 9 per cent. The latter part of the series gives promise of a result for the future still surpassing this. The improvements in the operation introduced by Sänger, especially the adaptation to the uterine wound of Lembert's intestinal suture, are doubtless of great value. But an important part also of Sänger's work has been that he has popularised the operation, has led obstetricians to practically study it, and undertake it as a first choice, in cases of

contracted pelvis, at the most favourable stage of labour. The importance of this element is shown by the relatively unfavourable result of Sänger's operation elsewhere, and especially out of Germany. Its general mortality for the last four years is thus raised to 26·8 per cent. The circumstance of greatest promise for the future is that the success has not been merely that of one or two operators of transcendent skill or unusually wide experience. Although it has been won mainly in German cities, and, above all, in two of them, the number of actual operators has been considerable, even at Dresden and Leipzig. Even throughout the whole of Germany the average success attained has been remarkable; seventy-four operations by thirty-four operators within the last four years giving a mortality of only 14·8 per cent. These figures I give from the latest statistics, as communicated to me by Dr. R. P. Harris, of Philadelphia.

As yet, indeed, the result does not justify the claim which some enthusiasts have prematurely made, that craniotomy should be cast aside as a murderous procedure, and Cæsarean section in all cases substituted for it. This may, indeed, now be hoped for as a future triumph, but a greater and—more important still—a more universal reduction of mortality must first be secured. Meanwhile, it is much that fœtal life is already being saved, and the field of craniotomy reduced to those cases in which the risk of that operation to the mother in skilful hands is trivial.

An opprobrium to the obstetric art as great as Cæsarean section has been the impossibility of guarding patients having an extra-uterine fœtation from the enormous risks of that condition, either by waiting upon Nature, or by primary operation. Here, also, much progress has been made, though more yet remains in the region of hope. In Cæsarean section Germany may, perhaps, always retain the lead which she has obtained, partly on account of the greater frequency of contracted pelves in that country than in England or America; partly because, on the Con-

tinent, it has been usual to estimate more highly than in Britain the value of fœtal life, as balanced against a degree of increased risk to the mother. In the treatment of extra-uterine fœtation we may claim that this country has taken as leading a position as in other departments of abdominal surgery. I remember it being urged not many years ago, in this Society—not as a fact ever tested by experience, but only as a theoretical proposition—that, in a ruptured tubal fœtation, the right treatment would be to perform abdominal section and remove the fœtal sac. Now cases so treated with success are being multiplied. In most of them, it is true, the operation has been performed after the primary collapse has passed off, and the patient has been saved from subsequent secondary risks, rather than from immediate death by hæmorrhage. But there have been cases of success, even in the stage of primary bleeding. We have already advanced so far that the risks of extra-uterine fœtation may be regarded as greatly reduced, provided only an early diagnosis can be made.

Even in the far more formidable case of extra-uterine fœtation in the latter months of pregnancy, opinions are turning again in favour of the primary operation, which had been almost abandoned as too disastrous to attempt. Only five years ago it was estimated that out of twenty-four primary operations at such a stage of pregnancy, only one mother had survived. This was the patient operated on by Mr. Jessop, who had a very narrow escape. But many of these cases, although they seem to tell in statistics against a primary operation, ought really to be regarded as in favour of it, because they were undertaken only because the patient had become moribund under the expectant plan. Recently our late President has given us an excellent example of success to follow. This much can already be said with assurance, that, whenever the fœtal sac can be opened without the peritoneal cavity, or when the opening in it can be securely stitched to the abdominal wall, results ought to be far more favourable in future.

One or other of these possibilities may be reckoned on in these cases of intra-ligamentous pregnancy, which have only lately been recognised as a separate and comparatively common variety, and which do not yet appear in the nomenclature of the Royal College of Physicians. Where the fœtus is found free among intestines, or covered only with a thin amnion, probably the risk from decomposition of the placenta, if not from hæmorrhage, must always remain very great.

I should claim little for the treatment of extra-uterine fœtation in the earlier months by faradization, though it has been so highly praised in America. Since diagnosis is then often uncertain, and since an extra-uterine fœtus often dies without any treatment, this is a case in which I think that less importance should be attached to so-called positive evidence than to the negative evidence that, when fœtal life is proved, the most vigorous and persevering attacks may be made upon it by faradization without impairing its vigour in the smallest degree, as I have myself tested.

Another advance, which must be regarded as of greater importance than either of those which I have mentioned, in view of the possibly widespread saving of maternal life which it may effect, is the application of antiseptics to midwifery. A series of improvements culminated in the use of perchloride of mercury as an antiseptic, and the transformation as regards lying-in hospitals is already complete. It used to be considered, with justice, that it was safer for a woman to be delivered in the most miserable and insanitary hovel than in the most palatial and well-regulated lying-in hospital. Now it has been found possible to reduce the total mortality in lying-in hospitals as low as 5 or even 4 per 1000, with an almost complete banishment of septic disturbances, and they are, therefore, as safe as any other place for delivery.

There is, however, a curious chapter in the history of the mortality of lying-in hospitals which has, I think, generally escaped notice, and which deserves attention,

although I am unable to offer any explanation of it. In the closing years of the last century a remarkable improvement was attained in the death-rate of, at any rate, some lying-in hospitals. It was ascribed to the improved knowledge of hygiene, and was celebrated in glowing terms, such as might now be applied to the results of the most fashionable modern antiseptics. At the British Lying-in Hospital the deaths per 1000, which for the decennial periods between 1749 and 1788 had varied from 16·5 to 23·6, fell in the decennium 1789—1800 to 3·2, though the number of women delivered was greater than before, namely, 6677, a result which surpasses even the best attained in lying-in hospitals at present.* At the City of London Lying-in Hospital, the mortality from 1790 to 1800 was only 5·7 per 1000, from 1800 to 1810 only 4·3 per 1000. The following quotation from Dr. Guy's 'Lectures on Public Health,'† will show how these facts were regarded:

"Perhaps I cannot better exhibit the improvement that took place in the latter half of the (eighteenth) century than by giving you the figures of the British Lying-in Hospital for the first and last twelve years of that period of fifty years. There died in the first twelve years more than 1 in 15 children, in the last twelve less than 1 in 82. And, as I have before me the deaths of the mothers for the same year, I may state that while the death-rate for the first twelve years was 1 in 38, it was only 1 in 318 for the last twelve. These figures show a reduction of mortality in an institution which must have commanded the best medical skill and best nursing of the whole period under review, of more than fivefold for children, and more than eightfold for their mothers. In this reduction sanitary improvements in space, ventilation, and cleanliness must have borne a very considerable part."

* "The Mortality of Hospitals, General and Special, in the United Kingdom, in Times Past and Present," by Dr. Steele, 'Journal of the Statistical Society,' June, 1877.

† Op. cit., p. 19.

Yet these brilliant results proved only transitory, and puerperal fever soon resumed its fatal ravages. In 1865–75 the mortality of the British Lying-in Hospital was again as high as 19·4 per 1000, that of the City of London Lying-in Hospital was 14·3 per 1000, that of Queen Charlotte's Lying-in Hospital 22·3 per 1000. At the Rotunda Hospital, Dublin, the improvement was not so marked in proportion to the old results, but the retrogression was quite as manifest. In 1791—1800 the mortality was only 8·8 per 1000, in 1801—1810 only 9·7 per 1000, but in the decennia from 1811 to 1875 it varied from 13·1 to 32·7 per 1000.

We who are believers in antiseptics must be somewhat startled at these results obtained in the period from 1790 to 1810 by ordinary cleanliness and hygiene, before Semmelweis had enlightened the world as to the true nature of puerperal fever, and be puzzled to explain why they could not be maintained. With our present views of the nature and treatment of puerperal fever, we can scarcely suppose that the low mortality depended upon the treatment then in vogue for that disease, when it had arisen. The midwifery text-books of the day recommend bleeding and emetics at the outset; later, antimony in the form of James's powder, and purging to the extent of producing four or five stools daily. The following passage occurs both in the 1798* and in the 1832 edition of Denman's 'Practice of Midwifery.' "I have very rarely attempted to inject medicines of any kind into the vagina or uterus, though, from a consideration of the probable state of the parts and of the fetid humours discharged it is reasonable to think that emollient or gently detergent injections might sometimes be useful. But the helpless state of the patient is such as to render the operation itself very troublesome; and, if they are advised, great caution will be necessary both in their composition and administration; but fomentations to the external parts have, I think, sometimes afforded comfort and been of service."

* Op. cit., p. 525.

Whatever may be the explanation of the retrogression in the sanitary condition of the lying-in hospitals after 1810, it can hardly be doubted that we are now upon a firmer foundation. The improvement is far more widespread in different countries, and the means by which it is attained are better understood. The hope may now be entertained that modern antiseptic methods would suffice to render healthy even a lying-in ward in a general hospital, though it is premature to speak positively on the subject until the experiment has been tried. It is needless to say how valuable a small ward of this kind would be in a great medical school both for the advance of science and the education of students. Many medical men must look back with somewhat of horror upon their first attendance upon a case of midwifery. A student is fortunate if, through the aid of his fellow-students in charge of cases, he has learnt practically beforehand to discover the os uteri in labour. Happily Nature suffices for delivery in normal cases, and skilled aid is readily procured; so the patients do not suffer, as the statistics show. But if students could be instructed practically in the process of labour by competent teachers before taking charge of a case, they would be likely to make better use of their experience afterwards.

It is a far more important question how far the extension of antiseptic midwifery is likely to obtain for the country at large a reduction of puerperal mortality and morbility at all comparable to that secured in lying-in hospitals. So great a reduction is not indeed likely, because the lying-in hospitals were the favourite home of puerperal fever. But even throughout the country, acknowledged puerperal fever, as returned to the Registrar-General, is responsible for more than half of the whole childbed mortality; and it may reasonably be suspected that septicæmia has to do with other deaths, not so diagnosed or not so returned. A reduction in puerperal septicæmia is therefore of enormous importance.

I think it probable that the decision of this question

may throw light upon points yet obscure in the nature of puerperal fever. It by no means solves the question completely to say that puerperal fever is simply septicæmia. Of the microbes capable of multiplying in the body, those which can enter without a wound have naturally more frequent opportunities for displaying their effects ; and, producing generally a definite set of symptoms, constitute some named zymotic disease. Microbes which can only enter through a wound are all massed together as yet under the titles of septicæmia and pyæmia, though as many as fifteen different species of microbes at least have been described as the essential cause of different forms of septicæmia in men and animals.

The recognition of the importance of microbes in puerperal fever has led many to regard as obsolete the old classification into autogenetic and heterogenetic puerperal fever ; and doubtless it is now the most important lesson to impress upon practitioners that all puerperal fever is, in a sense, heterogenetic, since the germs must have come originally from without. Yet it remains a question of vital importance whether microbes constantly or commonly present, or only rare and virulent ones, are the active agents ; and again, whether common microbes, which are generally innocuous, can be so cultivated in fertile soil as to become virulent.

Experience has shown that, in abdominal surgery, it is not of so much importance to destroy microbes as to avoid leaving any nidus for them in the shape of damaged tissue, or sanguineous effusion. It should not be forgotten that the same principle has its application in midwifery. Not even the use of the most fashionable antiseptic of the day would be a sufficient compensation for allowing unnecessary lacerations of cervix or perinæum, for omitting to secure good contraction of the uterus, for leaving a ruptured perinæum unsewn, or for bruising tissues needlessly in operations. But the special success in lying-in hospitals of the one particular antiseptic, perchloride of mercury, beyond all others, seems to indicate that the balance of

importance is somewhat different in midwifery and in abdominal sections; and that, in lying-in hospitals at any rate, there are likely to be virulent microbes, which ought to be destroyed.

Whether the same principle applies to the prevention of sporadic cases of puerperal fever in private practice can only be ascertained by a trial of antiseptic midwifery by all practitioners on a scale which has not, I believe, been attempted in this country. The use of perchloride of mercury for internal douches, as employed in lying-in hospitals, would indeed probably involve the risk of doing more harm than good, through its occasional poisonous effects. Fortunately there is reason to believe that this is not the most important part of antiseptic midwifery. We are told that a drop of normal mucus from the cervix of a woman at the end of pregnancy, when drawn with a sterilised platinum rod across nutrient jelly, may produce as many as two hundred colonies of various forms of bacteria. All who have tried to render the vagina aseptic, in the sense of being sterilised, for gynæcological operations, will know how difficult this is to accomplish.

This is brought out strikingly by the recent researches of Steffeck.* No number of douches of perchloride of mercury will render the vagina aseptic at the end of pregnancy. To effect such a result, it is necessary to scrub vigorously with two fingers not only the vagina but the inside of the cervix, while a douche of at least a litre of the antiseptic is being used. Even this produces only a momentary effect, unless it is followed up afterwards by the use of at least four or five douches at intervals. It may be doubted if the vagina is ever sterilised so as to satisfy the more severe practical test of leaving therein for several days a glass tube containing bloody discharge, without decomposition occurring in it.

I think we may conclude that the microbes commonly present are generally innocuous, and that, in lying-in

* "Ueber Desinfection des Weiblichen Genital Canals," von Dr. P. Steffeck, 'Zeitschrift für Geburtshülfe und Gynäkologie,' Band xv, H. 2, 1888.

hospitals at least, and probably elsewhere as well, what has to be done is to prevent the entrance of virulent ones. I would venture to urge on all practitioners the importance of providing for themselves and the nurse the most efficacious antiseptic known, namely, perchloride of mercury, of a strength not less than 1 in 1000. This should be used for hands, catheters, and any cotton-wool or sponges used for external washing; disinfection of the accoucheur's hands being the most important thing of all. Even the most complete unbelievers in antiseptics, if any such remain, must admit that this cannot possibly do any harm, and involves merely a little extra trouble. One practical detail is of importance. No one should trust to any tablets or powders of perchloride of mercury without testing them in dilute solution in the water of the district. It is obvious that, if the slightest milkiness is produced, it is impossible to tell how much of, or whether any of, the antiseptic remains efficacious. A concentrated solution made with a little glycerine and dilute hydrochloric acid in distilled water is more reliable, and has the advantage of the increased efficacy which the acid gives to the antiseptic in the presence of organic matter. The trouble of carrying a liquid is hardly greater than the trouble of dissolving tablets. As regards vaginal douches, my own view is strongly in favour of their routine use, with some efficacious but less poisonous antiseptic, such as carbolic acid; but I admit that this matter is open to difference of opinion, and that they are better omitted in normal cases, unless they can be used regularly by a competent person.

In most of the States of Germany stringent laws have been enacted for the use of antiseptics by midwives; and there is a general impression among German obstetricians that the conveyance of puerperal septicæmia has much diminished in consequence. I am informed, however, by Professors Leopold and Sänger, that, in Saxony at any rate, there has not as yet been manifest any appreciable diminution of the general puerperal mortality. Nearly one half of the deaths in childbed are still ascribed to

septicæmia. Fischel* infers from Dohrn's statistics that the laws relating to midwives have not yet produced an improvement in childbed mortality in any German State as a whole, though they may have done so in individual towns. It is an obvious consideration that no laws can enforce the efficient use of antiseptics, however much they may prescribe them. We may at any rate console ourselves with the reflection that, unless death registration is more delusive in England than abroad, our childbed mortality remains lower than that of either Germany or Austria.

Though the returns of the Registrar-General in England are thought not to indicate the whole mortality, they may afford some basis for comparison of different periods. They seem to show some improvement of late. The mean mortality of childbirth for thirty-nine years, 1847—1885, is given as 4·82 per 1000, but for the last ten years of that period as only 4·45 per 1000. Yet as regards puerperal fever the report is not altogether satisfactory. Since the year 1881, when a more stringent system was introduced by the Registrar, of sending for further information as to previous parturition, whenever the death of a woman was returned as due to peritonitis, considerably more than half of the total mortality in childbirth is set down to puerperal fever, the minimum for the years 1881—1885 being 2·58 per 1000. I think this affords ample ground for urging a more stringent use of antiseptics.

Meanwhile, a valuable experiment may be tried in the maternity charities of our great medical schools, the conditions in which approximate to those in private practice. In the charities of Guy's and St. Thomas's Hospitals, and, I doubt not, in others also, the use of perchloride of mercury is already being enforced. It must not be forgotten that the results here obtained, without any constant or systematic use of antiseptics, already equal or surpass even the best results of antiseptics in lying-in hospitals, and have steadily improved. Thus the mortality for the last

† "Die praktischen Erfolge der Modernen Geburtshilfe," von Dr. Wilhelm Fischel, 'Centralblatt für Gynäkologie,' 1888, No. 32.

ten years in the Guy's Charity was 3·4 per 1000, for the preceding twelve years 4·4 per 1000, for the first twenty-one years recorded 7·1 per 1000. But here again more than half the deaths are still set down to puerperal fever. If a material reduction of this mortality through a more stringent antisepsis can be proved, it will be an enormous stimulus to the adoption of similar precautions by all practitioners.

Another problem not yet fully solved with regard to puerperal fever is its relation to zymotic diseases. Though it has been a widespread opinion in this country that puerperal fever may originate from the infection of scarlatina, this opinion must be regarded as shaken by recent evidence. It is worthy of note that recent researches attribute the secondary lesions of scarlatina itself, such as those of the ear and the joints, to a mixed infection by another species of microbe. It is possible that, in the theory of mixed infection, may be found some solution of the problem. Dr. Boxall's account of scarlatina in the General Lying-in Hospital suggests the hope that, if complicating septicæmia can be excluded, scarlatina may lose much of its terror for the lying-in woman. Yet further evidence is to be desired. For a single epidemic may be of mild type; and even long before the days of antiseptic midwifery, a series of nine cases of scarlatina in Queen Charlotte's Lying-in Hospital was recorded by Brown, in which there was no mortality, and from which no septicæmia resulted. I would suggest that records of erysipelas occurring in lying-in women are especially desirable; for erysipelas has been thought to be yet more closely allied to septicæmia and puerperal fever than scarlatina, and yet it is a zymotic disease, and is considered to depend upon a definite and discoverable microbe.

We have still to look to bacteriologists for some light upon the infectious character of puerperal fever. We hear of *Staphylococcus pyogenes aureus*, *Streptococcus tenuis*, and *Staphylococcus pyogenes albus* being found. But these are comparatively common microbes, found fre-

quently in mild and local suppurations. Unless they can acquire virulence by their growth in the puerperal woman, it is difficult to understand that they can account for such intense infection that, in the days before the need of caution was recognised, instances occurred like that of the midwife, who, within one month, delivered thirty-one women, of whom seventeen died of puerperal fever.*

To the progress of gynæcology one of the greatest obstacles has been the difficulty of studying the morbid anatomy of the diseases of women. Most of these diseases are chronic complaints, which rarely prove fatal. Moreover, women much more rarely die during the active period of sexual life than men of a similar age, unless it is either from the effects of conception, from some acute zymotic disease, which modifies the tissues, or from chronic phthisis, which suspends the sexual functions; hence the difficulty which has been found in obtaining accurate evidence, even of the physiological states of the uterine mucous membrane during the menstrual cycle. Another difficulty of pathological study has been the fear of obstetricians that they might carry infection from the post-mortem room to their patients.

The recent extension of abdominal section in the treatment of diseases of women, while it has not been free from drawbacks and exaggerations, has, at any rate, advanced our knowledge of many complaints and put many popular theories to the test. We have learnt much, not only about inflammatory diseases of the Fallopian tubes, but about tubo-ovarian cysts, papilloma of the Fallopian tubes, and the pathology of ovarian growths in their earliest stages. Even if the enthusiasm of a surgeon for new and heroic modes of treatment leads him to operate needlessly, though some patients are the sufferers, science is not always without some compensatory advantage. Yet further improvement of our knowledge of pathology is to be expected from this direct mode of exploration in certain diseases.

* Robertson, 'London Medical Gazette,' January, 1840.

In connection with this subject, I may congratulate the Society upon a reform which has taken place in London, and, I believe, in the provinces also, namely, the removal of restrictions upon the performance of abdominal operations by obstetric physicians at many of our great hospitals. Within the last four years such restrictions have been removed at five important medical schools in London, and there remains only one great hospital in which they are still perpetuated. Such a change, I believe, could not but happen sooner or later, in consequence of the extended field of abdominal section both in midwifery and the diseases of women; but the manner in which it has come about is a source of gratification in two respects. In the first place, it has been due, I believe, in all instances, not to any intervention of governors or other lay authorities, but to the good feeling of our medical and surgical colleagues. In the second place, the argument which has told most powerfully with our colleagues has been the favorable results obtained by those obstetric physicians in London who were earlier in obtaining the concession. Although, with perhaps almost an excess of modesty, they published no lists of their achievements, their success became known, and proved that it could not be maintained that obstetricians need be less competent operators than surgeons. Science can hardly fail to be the gainer through the increased number of observers. We shall have the less excuse if we fail to hold the balance fairly between the tempting prospect of rapid cure, at the expense of some physiological drawback and some risk of life, and the often wearisome treatment by less heroic means.

There are other subjects in which our knowledge of pathology is still defective, but in which further information can be obtained from the post-mortem room alone. Abdominal section has revealed much about the ovaries and Fallopian tubes—comparatively little about the uterus. But little is known of the histology of corporeal endometritis, apart from that form of it which causes hæmorrhage. It is still a matter of dispute how far it is right

to describe such a disease as chronic metritis, apart from endometritis.

Other problems, again, cannot be solved by abdominal section alone, without careful comparison with the results of observations in the post-mortem room. I refer to such questions as the following: How far does chronic ovarian pain, in the presence of some disorder also of the uterus, justify a diagnosis of chronic ovaritis? To what extent are ovaries enlarged by many dilated follicles, or small and indurated with atrophy of follicles, to be regarded as pathological conditions, and as the source of important symptoms?

I have ventured to point out some subjects on which I think research especially desirable; but, in looking forward to the work of the year, I know that the active workers, so many of whom our Society is proud to possess, need no guidance, and that the contributions of the future will not fall short of those of the past in their scientific value.

Dr. Matthews Duncan said the Society had had, in past years, ample evidence of the great accomplishments and diligence of Dr. Galabin. Especially had he distinguished himself by mathematical contributions to the mechanism of midwifery, and his remarkable speech on a paper of Dr. Herman's on the development of the pelvis was fresh in the memory. Now we had the honour of being presided over by him, and this evening had had experience of his ability in this great office. The inaugural address which he had just delivered was of a most interesting and instructive character, and he moved that the Society record a hearty vote of thanks to him for it, and request his permission to have it printed in the 'Transactions.'

Dr. Graily Hewitt seconded the motion.

ON THE RELATION BETWEEN CHLOROSIS AND MENSTRUATION. AN ANALYSIS OF 232 CASES.

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(Received November 1st, 1888.)

(*Abstract.*)

In the rapid progress of uterine specialism chlorosis, in its relation to menstruation, has been too much neglected. This constitutional disease has been investigated by the physician and the pathologist but not by the gynæcologist. The paper is based on an analysis of 232 cases carefully noted by the author. The cases are divided into two groups; the first, where the illness was primary and occurred before the twenty-third year, comprising 183 cases; and the second, where the attacks were of the nature of relapses after a period of good health, these number 49 cases. Chlorosis is regarded as due to a constitutional state; but it is shown that the diathesis is not necessarily associated with an impairment of the development of the body; and is not, to any marked degree, connected with defective health previous to the onset of the disease.

First is considered the influence of the chlorotic constitution on menstruation before chlorosis sets in. Tables are given which show that the tendency of the chlorotic diathesis is to accelerate the age at which menstruation first appears, and that chlorosis by itself is not a cause of retarded appearance of the catamenia. At the same time, in one half of the cases, the functional activity is defective, and is chiefly characterised by lengthening and irregularity of the intervals and scantiness in the amount of the flow.

The author's statistics are against the opinion that there is a menorrhagic form of chlorosis. In 96·6 per cent. the effect was to diminish the activity of the function, the remaining fraction were complicated with ovarian irritation. In 58·7 per cent. menstruation became scanty and irregular, and in many cases painful, while in 37·8 per cent. there was amenorrhœa for various periods.

Chlorosis and age.—A table is given which shows that there are two marked chlorotic periods; the one, of primary attacks, from 14 to 21; the other, of secondary attacks, from 24 to 31. The number of cases of the disease presents a regular curve, beginning at 14 and rising steadily to a maximum between 18 and 19, then rapidly falling to disappear altogether at 22. The tendency to secondary attacks manifests itself first at 24, rises to a maximum between 26 and 28, to again disappear at 32. That there may be a third period is probable, as two cases are recorded at 39 and 41. This law applies to attacks of the disease with distinct intervals of good health between, as distinguished from the simple relapses, after periods of imperfect convalescence, frequently met with after a primary attack.

The curve of menstrual age compared with the curve of the onset of chlorosis, do not bear out the opinion that, "foremost in etiological importance is the period of the first appearance of the catamenia." The fact of a periodicity in the attacks is also against it. The cause of this periodicity is considered; and the general conclusion arrived at is, that imperfect evolution of menstruation, as evidenced by scantiness of the flow and irregularity of the periods, is as regular a feature of chlorosis as the imperfect evolution of the red corpuscles of the blood. That these constants are not related to each other as cause and effect but are independent one of the other. At the same time there is a close relationship between them whereby the reproduction and development of the red corpuscles of the blood is governed by, or forms part of, the menstrual cycle; and that both are influenced by a greater rhythmic action which determines the time and activity of development, growth, and reproduction.

The rapid progress of uterine specialism, of which we are so proud, has its debit as well as credit side. Under the former must be placed the diminished attention which has been paid to the constitutional aspects of the diseases of women. Thus, chlorosis is a constitutional disease in which menstruation is always affected, yet none of our works on gynæcology devote a chapter to it. Its individuality, as marked as that of rickets in childhood, is ignored. The affection is spoken of as chlorosis or anæmia, as if the two terms were synonymous. The loss of strength is regarded as the weakness due to the injurious influence of occupation or mode of life; leaving unexplained the fact that the same agencies do not produce like symptoms in all. But for the special chapter devoted to amenorrhœa, chlorosis would be hardly mentioned; the symptom is discussed, not the disease. Chlorosis has been investigated by the physician and the pathologist, but not by the gynæcologist. In an indefinite manner it is regarded as associated with puberty, or the approach of the female organism to sexual maturity. At the same time it is stated that it occurs most frequently between the years of fourteen and twenty-four. It is difficult to see how the changes of puberty can be the cause, and it is more reasonable to suppose that chlorosis influences menstruation, than that, as Zimmerman puts it, "foremost in etiological importance is the period of the first appearance of the catamenia." What the influence is, or what is the true relation between chlorosis and menstruation has yet to be determined.

Chlorosis is very common in Aberdeen, whether more so than in other towns I cannot say, but I do not think it likely. In the three years during which I have conducted this investigation, I have seen 232 cases in the consulting room, notes of which have been taken at each visit. This is not, however, an estimate of general practice, for this favourable field of observation is the result of a reputation in the treatment of the disease, due to the use of Blaud's pills, and the special character of my practice. As a lesion of a nerve throws light on its function, so an analysis of

these cases may increase our knowledge of the function of menstruation.

As the reliability of statistics is dependent on the care exercised in their collection, I would state that I have excluded all cases of anæmia where the cause might be associated with chest affections, or there was reason to suspect a phthisical tendency. Also where the debility was but part of a weakly state of health beginning in childhood, and where the condition was therefore doubtful in character. Cases only have been accepted which presented the *constants* of chlorosis. These are, the loss of the natural healthy colour, and the development of the chloro-anæmic expression, characterised by a waxy transparency of tint, or a yellowy grey hue; together with ready fatigue and shortness of breath on exertion. A change in the character of menstruation, or where the catamenia had been, from the first, irregular or scanty, should also be regarded as a constant; but as this is a point to be proved, it has not been taken as a means of selection. There might also be added a confirmatory test, the invariable, and generally rapid improvement under treatment with Blaud's pills. With these conditions there were, of course, associated, in varying number and degree, other symptoms met with in the chlorotic, and confirming the diagnosis; but as this investigation is at present confined to the relation between chlorosis and menstruation, these need not here be discussed. In investigating this subject it is advisable to divide the cases into two classes. The first, where the illness was primary and occurred before the twenty-third year, and the second, those above twenty-three years of age, and where the attacks were of the nature of relapses, after an interval of good health. Whether a primary attack never occurs after twenty-three is a subject requiring examination, and is not here asserted; but in considering the question of menstruation there are advantages in limiting the cases as indicated.

Before entering on the analysis it is important to keep in view that the chlorotic condition must be regarded as

due to a special diathesis; that is, that it is primarily dependent upon a peculiarity of the constitution, whereby adverse influences, common to the female population as a whole, develop chlorosis in those only who have inherited or acquired this peculiarity. In all questions regarding menstruation, the general state of health and development of the body must be considered. If the tendency of the chlorotic diathesis be to retard development and interfere with nutrition, then the derangements of menstruation may be the effect, or part of the faulty state of the body. My statistics show that this is not the case. Of the 183 patients in the first division of the cases, 76 per cent. enjoyed good health before the onset of chlorosis, and 24 per cent. had previously been not robust. The height and weight of 101 of the patients were taken, with nearly the same result. 79 per cent. were of, or above, the typical standard, and 22 per cent. were under the typical weight for their height. The chlorotic diathesis, therefore, is not necessarily associated with an impairment of the development of the body, and is not to any marked degree connected with defective health previous to the onset of the disease. On the contrary, many of the cases had a fine physique and had enjoyed robust health. The defective health met with in 24 per cent. of the cases may fairly be considered as due to other influences.

Character of Menstruation in Chlorotic Patients before Chlorosis set in.

In a great majority of cases chlorotic symptoms do not manifest themselves till three, four, or more years after the appearance of menstruation. If, then, the chlorotic tendency exercises any influence on the menstrual function, apart from the faulty condition of the blood when chlorosis is established, its influence should be traceable before debility has set in.

Does the chlorotic diathesis influence the age at which menstruation begins?

Table I gives the respective numbers and the percentages of the cases menstruating first at each respective year. To ascertain the influence of the chlorotic diathesis, these must be compared with statistics of the general population. For this purpose I have taken the researches of Dr. More-Madden, of Dublin, and Dr. Whitehead, of Manchester. They differ from one another, but the former are probably more nearly parallel with my own, whilst the latter, probably taken largely from the operatives of a large manufacturing town, represent the effect of a different set of agencies. The Table clearly proves that the tendency of the chlorotic diathesis is to accelerate the age at which menstruation first appears.

Is the chlorotic constitution ever the cause of delayed menstruation?

In the 183 cases there were but four who had not menstruated. Their respective ages were 15, 16, 17, 17. Out of 220 cases 12 per cent. only menstruated from the seventeenth year onwards; in More-Madden's cases 15 per cent., and in Whitehead's 25 per cent. These numbers, taken together with the decided tendency to accelerate the menstrual age, seem to indicate that chlorosis by itself is not a cause of the retarded appearance of the catamenia.

Next we may inquire whether the chlorotic diathesis influences to any degree the character of menstruation from the first and before the impairment of the general health. Three elements enter into the question: 1. The regularity of the periods; 2, the amount of the discharge; and 3, the absence or presence of pain.

1. *Regularity of the periods.*—In 70·6 per cent. the catamenia were regular, in 29·3 per cent. they were irregular. In every case the intervals were increased, in none were they under the four weeks.

2. *Amount of the discharge.*—In 54·6 the quantity was ordinary in amount, in 40·8 it was scanty, and in 4·6 it

was inclined to be free. In no case, however, was there what could be called menorrhagia.

3. *Pain.*—In 155 cases where the subject of pain was noted, 61·2 per cent. had no pain to complain of, 26·4 had a varying amount of pain, but not such as to cause inconvenience, whilst 12·2 per cent. suffered severely.

These three elements were variously grouped in individual cases. The result may be generally stated as follows: In 47·5 per cent menstruation was normal; in 20·7 per cent. there was a slight defect; in 26·7 it was markedly defective; in 2·7 menstruation was imperfectly established; and in 2·1 there was primitive amenorrhœa. In fully one half of the cases, therefore, the chlorotic characters, that of scantiness in amount of the discharge and increase in the interval between the periods, were stamped upon the menstrual function before the development of active chlorosis.

The general conclusion, therefore, may be drawn that the chlorotic constitution, apart from the change in the blood, tends to accelerate and not retard the age of menstruation; at the same time, in one half of the cases, the functional activity is defective, and is chiefly characterised by lengthening and irregularity of the intervals and scantiness in the amount of the flow.

Influence of Chlorosis on the Character of Menstruation.

Regarding the influence of chlorosis on menstruation, my experience is at variance with those who, following the lead of Virchow and Trousseau, make two varieties of the disease, an amenorrhœic and a menorrhagic. In 177 cases, in which menstruation was fully established, there is not one where there has been profuse menstruation, either before or after the development of the disease. In one case only after chlorosis was the discharge rather free, and in three it was too frequent, but at the same time scanty. All these cases were complicated with ovarian

irritation, to which the peculiarity in character was doubtless attributable. They therefore do not warrant the opinion that there is a menorrhagic form of chlorosis, or that the disease by itself is ever associated with menorrhagia.

In two cases only is it noted that there was no change in the character of the catamenia. In both they had previously been normal.

There remain 171 cases, or 96·6 per cent., where the effect of the chlorosis on menstruation was in a variable degree to diminish the activity of the function. In 58·7 per cent. menstruation became scanty and irregular, and in many cases painful, whilst in 37·8 per cent. there was amenorrhœa for two months to two years. Amenorrhœa, therefore, is less frequent than irregular and scanty menstruation. It is therefore evident that diminution in the activity of the menstrual function must be considered a regular and not an occasional symptom merely of chlorosis, as constant in fact as the change in the blood itself.

Chlorosis and Age.

Important as bearing on the relation of chlorosis to menstruation is the fact that the large majority of attacks occur between the ages of fourteen and twenty-two; or during the years from the beginning of menstruation to the time when the uterine development is complete. This gives a *primâ facie* basis for the opinion that the strain of puberty is the chief cause of chlorosis. To determine the true relationship, however, it is necessary to investigate more carefully and fully than has yet been done the relation of chlorosis to age.

Some authors state that they have met with the affection in childhood, but doubts may well be entertained of the true nature of such cases. With twenty-five years of continuous connection with children's hospitals, I have never seen such a case. Chlorosis occurs most frequently

between the ages of fourteen and twenty-two, but secondary attacks are not infrequent in later years. After the menopause it does not seem to appear. I have met with one well-marked instance at forty-three years of age. Chlorosis therefore must be regarded as peculiar to the menstrual period of life. It must also be accepted as a disease peculiar to women. There must therefore be some relationship between chlorosis and menstruation.

To determine first the relationship with age it is essential to take the age of the patient, not at the time of visit, but when the chlorotic symptoms first manifested themselves. In seven of the cases this could not be ascertained with certainty, but in the others it was determined with a reliable degree of accuracy.

From the Tables it will be seen that with reference to age there are two marked chlorotic periods, the one of primary attacks from 14 to 21 years of age, the other of secondary attacks from 24 to 31 years. The number of cases of the disease presents a regular curve, beginning at 14, and rising steadily to a maximum between 18 and 19, then rapidly falling, to disappear altogether at 22. The tendency to secondary attacks manifests itself first at 24, rises to a maximum between 26 and 28, to again disappear after 32. That there may be a third period is probable, as two cases are recorded at 39 and 41. This law applies to attacks of the disease with distinct intervals of good health between, as distinguished from simple relapses after periods of imperfect convalescence. Such relapses are common after a primary attack, during the first chlorotic period, and may recur for two, three, or more years.

We have now a curve representing the age of first menstruation, and another the age of the onset of chlorosis. These enable us to estimate the influence of the one event upon the other. Were it true that "foremost in etiological importance is the period of the first appearance of the catamenia," these two curves should nearly correspond one with the other. But they do not. The largest number

of chloritic patients menstruate in the fourteenth and fifteenth years; the largest number of first attacks of chlorosis occur in the eighteenth and nineteenth years. Taking cases individually there appears to be no relationship between the menstrual age and the time when chlorosis appears. That event seems to be determined by age in the same manner as menstruation, but independently. The fact, moreover, of a periodicity in the attacks, as evidenced by the increase of cases between twenty-seven and thirty-one, goes still further against the etiological importance of the first appearance of the catamenia. At the same time it must be borne in mind that the function of which menstruation is but the outward evidence, is not fully established at puberty, and that maturity is not attained till after the twenty-second year. The chief chlorotic period is from seventeen to twenty-one. It is evident therefore that it is not with the beginning of menstruation that chlorosis is related, but with the period of maturing of the function. This, however, is only as regards time, the real connection is not explained thereby, and the cause of the recurrence of the malady between twenty-seven and thirty-one is unaccounted for.

Is there any relationship between them as cause and effect? Since scantiness of discharge and irregularity in the periods are features in the chlorotic constitution met with in half of the cases before the change in the blood has manifested itself; and since impairment of menstruation, so constant in chlorosis, precedes in some of the cases the other marked symptoms, the disturbances of menstruation cannot be considered as the result of the changes in the blood. On the other hand, the fact that chlorosis is met with only during menstrual life, and is closely associated in time with the maturing of the reproductive function, would make it appear that this function is an important factor. The defective menstruation, however, cannot be regarded as the cause of the change in the blood-corpuscles. The more probable view is that the two "constants" of chlorosis are common but distinct effects of a constitutional

state ; just as the affection of the bones and the muscular debility in rickets are both expressions of a diathetic condition. As the two, however, are so constantly linked together we have indicated a close relationship between them. In plants we know that there is a morphological connection between the chlorophyl-producing structures and the reproductive organs. Our knowledge of the origin and development of the red corpuscles of the blood is still imperfect, but it is not too much to assume that there exists a similar connection between the hæmoglobin-producing bodies and the function of reproduction in animals. Facts might be advanced in support of this, but it is a subject too extensive to be entered on here, and its importance, as advancing our knowledge, demands a thorough investigation.

There remains to be explained why the two chlorotic periods occur, the one between the years of seventeen and twenty-one, and the other between twenty-seven and thirty-one. These facts belong to a law which governs the two great physiological processes of growth and reproduction. In the 'Lancet' of September 22nd, 1888, I have shown that the rate of growth in the body presents a well-marked curve, the apex of which corresponds in girls with the thirteenth and in boys with the sixteenth year. It then gradually falls till eighteen or nineteen. After the initial growth of the body comes the function of reproduction. In reference to this subject Dr. Matthews Duncan* remarks, "The fecundity of the average individual woman may be described as forming a wave which, from sterility, rises gradually to its highest, and then, more gradually, falls again to sterility" (p. 43). "The climax of initial fecundity is probably about the age of twenty-five years" (p. 33). Dr. Routh† states, "The age of greatest fecundity in males is from thirty-one to thirty-three, in females twenty-six." Here, then, we have evidence of a wave of vital activity, attaining its apex in girls

* 'Fecundity, Fertility, and Sterility,' Edinburgh, 1871.

† "On Procreative Power," 'Lond. Journ. of Med.,' 1850, vol. ii, p. 240.

at thirteen and in boys at sixteen, falling thereafter and again rising to a maximum at double these periods, namely, twenty-six and thirty-two. That it again manifests itself, at a second multiple, is highly probable, but has not been demonstrated. Now, the chlorotic periods correspond with the trough of the waves, or when vital activity may be considered at ebb. The essential character in chlorosis is defect of power in functional evolution, and that defect becomes most manifest when vital activity is lowest. This, I believe, is the true explanation of the occurrence of chlorosis at special ages. A knowledge of these facts will be found to have considerable clinical importance.

The conclusion to which the above examination of the subject leads is that imperfect evolution of menstruation, as evidenced by scantiness of the flow and irregularity of the periods, is as regular a feature of chlorosis as the imperfect evolution of the red corpuscles of the blood;—that these constants are not related to each other as cause and effect, but are independent one of the other. At the same time there is a close relationship between them, whereby the reproduction and development of the red corpuscles of the blood is governed by, or forms part of, the menstrual cycle, and that both are influenced by the greater rhythmic action which determines the time and activity of development, growth, and reproduction.

TABLE I.—*Showing the numbers and percentages of* 220 *chlorotic patients who menstruated first at the respective years and the percentages of the general population.*

	Age.	12	13	14	15	16	17	18	19	20	Total.
A. Chlorotic Patients .	No.	10	25	63	65	30	21	4	1	1	220
	Per cent.	4·5	11·3	28·6	29·5	13·6	9·5	1·8	·4	·4	—
B. More-Madden .	„	3·4	10·	19·	27·7	21·1	13·	2·	—	—	497
C. Whitehead .	„	3·4	8·3	15·9	19·	24·	12·5	9·8	3·7	1·8	4000

TABLE II.—*Showing the numbers who menstruated first at the respective years, and the numbers who had a first attack of chlorosis at the respective ages.*

Chlorotic age.		14	15	16	17	18	19	20	21	22	23	Uncertain.	Totals.	Per-centage men-struated.
No previous menstruation		1	1	2	—	—	—	—	—	—	—	—	4	—
Menstrual age.	12	—	2	1	2	2	2	—	—	—	—	—	9	5·
	13	—	—	1	6	6	5	—	1	—	—	1	20	11·1
	14	—	6	5	11	15	16	1	1	—	—	1	56	31·2
	15	—	4	7	10	13	11	5	—	—	1	2	53	29·6
	16	—	—	5	6	2	6	2	1	—	—	1	23	12·8
	17	—	—	1	1	4	3	5	—	—	—	2	16	8·9
	18	—	—	—	—	—	—	—	1	—	—	—	1	·5
	19	—	—	—	—	—	—	—	—	—	—	—	—	—
	20	—	—	—	1	—	—	—	—	—	—	—	1	·5
Totals .		1	13	22	37	42	43	13	4	—	1	7	183	Totals.
Per cent. chlorosis		·5	7·3	12·5	21·	23·8	24·4	7·3	2·2	—	·5	—	—	—

TABLE III.—*Showing the numbers of secondary attacks beginning at the respective ages.*

Age . .	24	25	26	27	28	29	30	31	32	39	41
Nos. . .	2	3	9	10	9		4	2	1	1	1

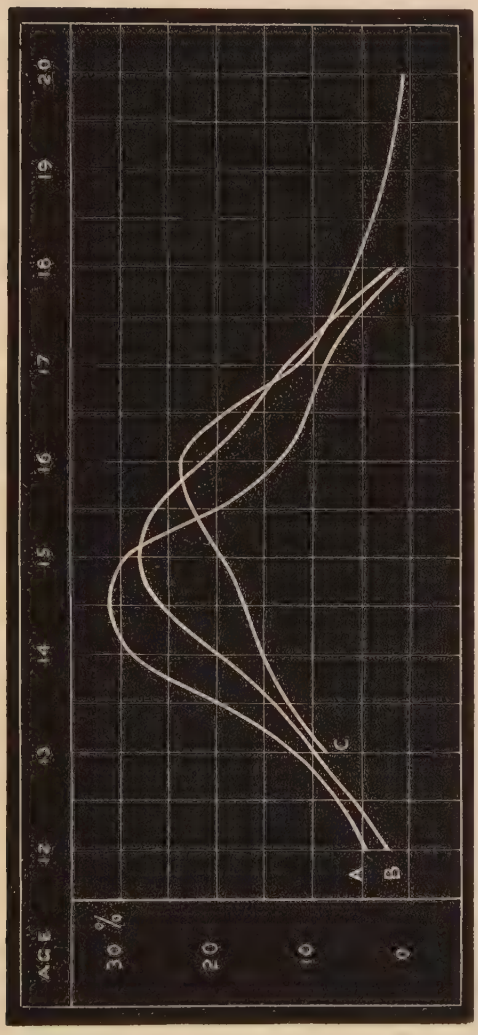


CHART I.—*Graphic representation of Table I.*

TABLE IV.—*Showing the number of cases at the respective ages at the time of visit.*

Age	15	16	17	18	19	20	21	22	23	24	25	26
Nos.	5	12	23	34	36	24	22	15	9	4	3	6
Age	27	28	29	30	31	32	33	34	38	40	43	
Nos.	5	10	4	9	0	4	1	4	1	1	1	

TABLE V.—*Showing the numbers that menstruated first at the respective ages and the character of the menstruation from the first.*

Age.	Normal.	Minus normal.	Defective.	Imperfectly established.	Primitive amenorr.	Total of menstruations.
12	2	4	3	—	—	9
13	11	4	5	—	—	20
14	34	14	8	—	—	56
15	28	9	14	2	1	53
16	8	5	9	1	1	23
17	2	2	10	2	2	16
18	1	—	—	—	—	1
19	—	—	—	—	—	—
20	1	—	—	—	—	1
Totals	87	38	49	5	4	—
Per cent.	47·5	20·7	26·7	2·7	2·1	
				31·5		
			52·2			

Normal = Regular, ordinary amount, and none or only slight pain.
Minus normal = Regular, scanty, and no pain, or
Regular, ordinary amount, and severe pain.
Defective = Never regular, scanty, with or without pain.

Dr. JOHN PHILLIPS inquired if the blood had been examined in any of the cases related. He thought that an accurate distinction between so-called chlorosis and anæmia could not be drawn otherwise. In chlorosis the average hæmoglobin richness per corpuscle is very much reduced, while in anæmia there is almost total abolition of corpuscle formation or there is very little power of hæmoglobin absorption. In the former iron is always beneficial, if not absolutely curative; in the latter harmful. Great improvement is often noticed after exhibition of arsenic.

Dr. LEITH NAPIER directed attention to one or two points involved in the paper. He thought that climatic conditions

were of some importance. When he practised in Aberdeenshire he saw fully twice as many cases of chlorosis in five years as his subsequent nine years' larger experience of practice in the South of Scotland afforded him. In London he thought chloro-anæmia rarer than in the North. He could not quite understand Dr. Stephenson's idea in referring chlorosis to a diathesis. Did Dr. Stephenson contend that chlorosis was a disease truly distinct from anæmia, or was he of opinion that there were some peculiar constitutional changes as distinctive features between these varieties of anæmia? One clinical observation was noteworthy, viz. that chlorosis and tuberculosis occurred rarely, if ever, in the same patient. Further, with regard to etiology many theories, all unsatisfactory, have been broached, as, for instance, Zander's idea, referring chlorosis to a deficiency of HCl in the blood. This, as well as many other fanciful beliefs, now obtained no credence. A few months ago, Sir Andrew Clark expressed his views on the question in a paper submitted to the Clinical Society. The gist of this paper was, that chlorosis was due to constipation, and that the retention of fæces favoured the production of ptomaines and leukomaines in the blood. Now, doubtless constipation was found associated with many chlorotic cases, but it seemed impossible to accept this theory as a satisfactory explanation universally applicable. Referring to Dr. Stephenson's eulogy of "Blaud's" pills, he thought these answered very well with some patients, but from an extended use of a still more simple ferruginous preparation combined with a saline and simple laxative, he had seen still better results. This preparation was a mixture of equal parts of iron filings, cream of tartar, and liquorice powder. As much of the mixed powder as would cover a shilling was given thrice daily. The prescription was got from an old Berwickshire surgeon, who had used it in treating chlorosis and anæmia with more than local fame for over fifty years. Dr. Leith Napier agreed with the statement that chlorosis was generally accompanied by absolute or partial amenorrhœa.

With reference to the author's opinion that there is no hæmorrhagic form of chlorosis, Dr. Clapham remarked that two years ago a well-marked case of chlorosis in a girl aged 18, came under his care who also had menorrhagia. On one occasion the hæmorrhage was so profuse that it caused syncope, vomiting, dilated pupils, jactitation, and the girl appeared moribund. A solution of perchloride of iron was applied to the interior of the uterus and the hæmorrhage ceased, but recovery was very slow and tedious. Subsequent periods were less severe, and the patient passed from observation.

Mr. Alban Doran remembered that about ten years ago a very anæmic girl, aged 16, was admitted into the Samaritan Hospital under the care of Dr. Routh. She was suffering from

profuse metrorrhagia, and notwithstanding all kinds of local treatment and transfusion she died. The patient had menstruated regularly from the age of twelve or thirteen, the flow being very scanty till shortly before death, but chlorosis had existed for over a year. A post-mortem examination was made, and Mr. Doran caused sections to be made of the uterus and appendages. He could find none of the morbid conditions described by Dr. Percy Kidd in his "Contribution to the Pathology of Hæmophilia" ('Med.-Chir. Trans.,' vol. xliii, 1878). On the contrary, the small vessels were quite healthy. The ovaries were remarkable for the very small number of follicles which they contained. Their surfaces were unusually smooth, even for so young a subject. The pathology of chlorosis and severe menorrhagia in young girls was so obscure that every fatal case ought to be carefully examined by a competent pathologist. Some relation probably existed between the two diseases, notwithstanding the great difference in the symptoms. Dr. Routh's case lent countenance to that supposition.

Dr. Rutherfoord wished to know, as a chlorotic diathesis had been spoken of, whether Dr. Stephenson had made any observations in his series of cases as to the occurrence of chlorosis in the parents of his patients? Dr. Rutherfoord was of opinion that menorrhagia did at times take the place of amenorrhœa and might assume serious proportions. He had seen profuse menorrhagia in two sisters both suffering from well-marked chlorosis. He thought a third period should be added to the times at which chlorosis generally appears, namely, at or about the "dodging" time. He believed that eventually the disease would be regarded as neurotic in origin, and the changes in the blood merely secondary phenomena.

Dr. Routh well remembered the case to which Mr. Doran had referred, and the sorrow he felt at finding that all attempts to bring about recovery failed. It was not a case when there was general tendency to bleeding after wounds, but purely one of menorrhagic chlorosis. When transfusion was about to be performed she died. Many years ago he was present at a discussion on this subject before the Medical Society of Paris. He then stated, and the French and English doctors seemed to concur in his views, that it was not only anæmia and amenorrhœa, but a blood poison. The colour of the skin, like that in jaundice, malaria, cancer, &c., showed it was something more, probably fæcal absorption, these fæces being often very offensive and abnormal in appearance. Someone had suggested that it might be due to absorption of some ptomaines formed in the body. It might be so, but fæcal absorption, as he had shown in a paper on fæcal fermentation, might and did produce symptoms sometimes not unlike chlorosis in men. There was an excellent old book, 'Hamilton on Purgatives' where were detailed several

such cases cured by purgatives. This would seem to prove that once the offensive motions were removed, the poisoning ceased and recovery followed. These were also mostly neurotic individuals, in whom nutrition was defective. In nearly all we had dyspepsia, possibly due to ineffective action of the nerves presiding over that function. Now, he had met with several cases where this symptom was the prominent one, and he had been surprised on finding that by applying the continuous current to the vagi nerves in the neck (as he had seen Dr. Apostoli do in Paris), the indigestion disappeared after two or three applications, and the patients did well thenceforward. Arsenic and iron were of course efficient remedies, but pure food properly digested was the first *sine quâ non*, and the second was purification and cleansing out of the alimentary canal by efficient purgatives. This done, recovery was the usual result.

Dr. PLAYFAIR said that although he was certain that the menorrhagic form of chlorosis was exceedingly rare, yet he was sure Dr. Stephenson was mistaken in supposing that it did not exist. Some years ago he had seen, with Dr. Walker, of Peckham Rye, a very interesting example of it in a markedly chlorotic girl in whom the hæmorrhage was so great that she nearly died from it. He could have wished that Dr. Stephenson had given them some information as to the causation of chlorosis in young girls, because it was evident that if we were to deal with it scientifically we must go behind the mere symptoms and find out the morbid conditions which had originated them. As to the so-called "chlorotic diathesis" of which Dr. Stephenson spoke, he himself knew nothing, and he greatly doubted if anything of the kind existed. Certainly he had never seen any evidence to lead him to think that there was such a thing as an hereditary or constitutional predisposition to chlorosis. As to climatic influences, to which Dr. Stephenson attributed the prevalence of the disease in Aberdeen, he thought it likely enough to be influential. He had been struck, for example, with the number of cases of chlorosis he had seen in young ladies from Australia, which was quite out of proportion to the number who visited this country. It would be interesting to learn if it was peculiarly prevalent in our Australian colonies. Another common cause, and one of great importance, to which Dr. Stephenson had not referred, was over-work and pressure in the high-class schools for girls which seem now so numerous. This operated shortly after menstruation was established, when the female economy was most susceptible to unwholesome conditions. He had also seen several very well-marked cases in girls who had been sent to school in Germany. Here probably dietetic influences were superadded to over-work, since the girls were there generally put upon an insufficient and innutritious diet, altogether different from that to which they had been accustomed. These facts all

pointed to the conclusion that the basis and essence of the disease was a profound alteration of the general nutrition, and in many cases a neurotic element was the predominant one. If this be so, then a successful treatment must have for its object the improvement of the nutrition by every means at our disposal. Blaud's pills, to which Dr. Stephenson pinned his faith, were no doubt an admirable way of administering iron, but they certainly were not a universal panacea. He used them generally, but he had seen many cases in which they had been taken by almost bucketfuls without avail, nor could any one drug be expected to be uniformly successful. In the worst type of case, which had resisted every other form of treatment, he had never failed to effect a cure by a regular course of systematic treatment by rest, massage, and over-feeding. The rapidity with which the bodily nutrition improved in this way was sometimes quite marvellous. That was his specific, and he believed it to be a better one than Dr. Stephenson's, although doubtless he would not agree with him.

Dr. Graily Hewitt believed that the fundamental condition in cases of chlorosis was imperfect and inadequate nutrition. Even in the higher grades of society insufficiency in regard to dietary was not at all uncommon. A knowledge of this fact was very important in regard to treatment, the main object being to restore nutritional activity. As medicines, mild aperients and iron were required.

Dr. T. C. Hayes thought the symptoms of chlorosis were dependent upon a blood change, the corpuscles being affected and iron deficient. For treatment he had tried many forms of iron, and found the disease was curable by any of them if only taken in sufficiently large doses and for a certain time. He had never seen menorrhagia with chlorosis properly so called. He had never seen chlorosis developed after marriage; in his experience married women might be anæmic but not chlorotic, unless the chlorosis existed before marriage.

Dr. Dyce Brown thought that the idea of a chlorotic diathesis was quite untenable, and that the only tenable view of the cause of chlorosis was the neurotic one; that there was a profound but only functional disorder of the nerve-centres which regulated nutrition and blood formation. The fact that chlorosis is caused by nervous shock, anxiety, and disappointed love, together with the whole train of symptoms, pointed clearly in this direction. The malnutrition was only in certain spheres, as chlorotic patients were not unfrequently fat. No notice had been taken by Dr. Stephenson, or any previous speaker, of the state of the temperature. His experience was that in all cases where the temperature was above normal, however little, iron was of no use, and was positively hurtful. It is in such cases that arsenic, especially the iodide of arsenic, was so valuable; and the remedy—

one of the so-called "new" remedies, but one which had been in use by homœopaths for nearly a century—pulsatilla, was of much service in these cases. It influenced the nervous system, and then digestion, and promoted a more healthy condition after the catamenia.

Dr. Heywood Smith said that with regard to Dr. Stephenson's argument by analogy from the chlorophyll of plants to the hæmoglobin in the human subject, as illustrating the blanching in cases of chlorosis, he would draw attention to the blanching of the majority of old persons who had passed the age of sexual activity. He did not know whether any observation had been made on the blood of old persons.

Dr. Horrocks said that in his experience chlorosis was so generally associated with diminution or cessation of the menses, that in any apparent exception to this rule there was probably some other cause at work, although not perhaps discoverable. He believed chlorosis was quite a different thing from the anæmia caused by loss of blood. The menses in the latter cases were not always diminished. The nervous system undoubtedly played an important part in the production of chlorosis and in the cessation of the menses. The latter was a good thing for the patient so long as she was weak and pale from the disease itself. He found any iron salt was efficacious, but particularly the carbonate. The powdered saccharated carbonate of iron was not so unpleasant to take, and was very successful in curing the patient.

APRIL 3RD, 1889.

ALFRED L. GALABIN, M.D., President, in the Chair.

Present—45 Fellows and 9 Visitors.

Books were presented by Dr. Cullingworth, Dr. Aug Martin, Dr. Montagu Murray, and La Société Obstétricale et Gynécologique de Paris.

William Edward Dawson, L.K.Q.C.P. & L.M.; Henry Willingham Gell, M.A., M.B.Oxon.; Charles A. Goullet, L.R.C.P.Lond.; and Charles D. B. Hale, L.R.C.P.Lond., were admitted Fellows of the Society.

The following gentlemen were elected Fellows of the Society:—William Carnegie Brown, M.D.Aber. (Penang); Frederick Hall, M.D.St. And. (Leeds); and Henry Douglas Johns, L.R.C.P. (Boston).

The following gentlemen were proposed for election:—Edmund Octavius Croft, L.R.C.P.Lond. (Leeds); Harold A. Des Voeux, M.D.Brux.; Charles John Harper, L.R.C.P.Lond. (Finchley); George Robert Lake, M.R.C.S.; Richard Pinhorn, L.R.C.P.Lond.; David Thomson Playfair, M.D., C.M.Edin. (Bromley, Kent); Abraham Wallace, M.D.Edin. (Upper Norwood); Charles Henry Whitcombe, F.R.C.S.Edin. (Westerham); and Arthur Henry Williams, M.A., M.B., B.C.Cantab. (St. Leonard's-on-Sea).

FIBRO-SARCOMA OF THE RIGHT OVARY.

By M. Handfield-Jones, M.D.

Dr. M. Handfield-Jones showed a solid ovarian tumour which he had removed three weeks previously. The patient, aged 21, had noticed a small growth in the right iliac region for the first time on getting up after her confinement eighteen months ago. The growth had steadily increased without causing pain or affecting the general health. When first seen a month ago the tumour reached one finger's breadth above the umbilicus, was freely moveable, and of a stony hardness. The monthly courses had continued quite regularly, and were not accompanied by pain. At the operation about a pint of clear ascitic fluid was found in the abdominal cavity; the growth sprang from the right ovary and had the right Fallopian tube much hypertrophied passing round its lower portion in front. There were no adhesions. The convalescence proceeded without interruption, and the patient was sent home cured on the eighteenth day. Microscopical sections taken from various parts of the tumour showed that the growth was principally a fibroma of the ovary, but here and there patches of sarcomatous tissue were found, and in some spots the microscope demonstrated the presence of myxoma. There was no evidence to prove that the tumour had led to any infection of neighbouring tissues or organs. The annexed microscopical drawings show well the appearances presented at different sections of the growth.

Mr. Alban Doran observed that five days ago he had removed a very similar solid ovarian tumour from a woman aged 51. It was remarkable, like Dr. Handfield-Jones's case, for its extreme hardness, and also for its great weight. Although it was small, it weighed three pounds. As is usual in these cases, though not invariable, its pedicle was formed by the ovarian ligament, the Fallopian tube hanging to one side. In

FIG. 1.—Fibroma.

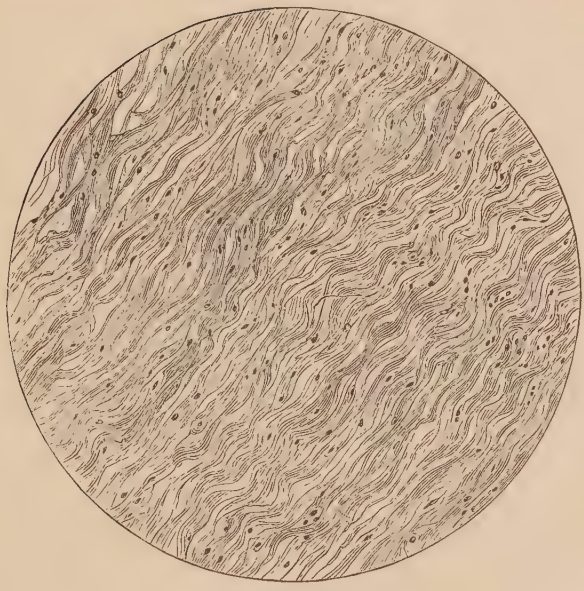


FIG. 2.—Fibroma.

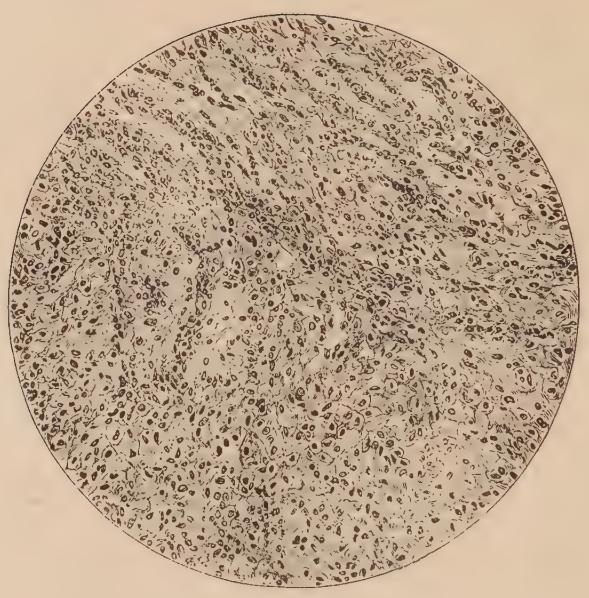


FIG. 3.—Sarcoma.

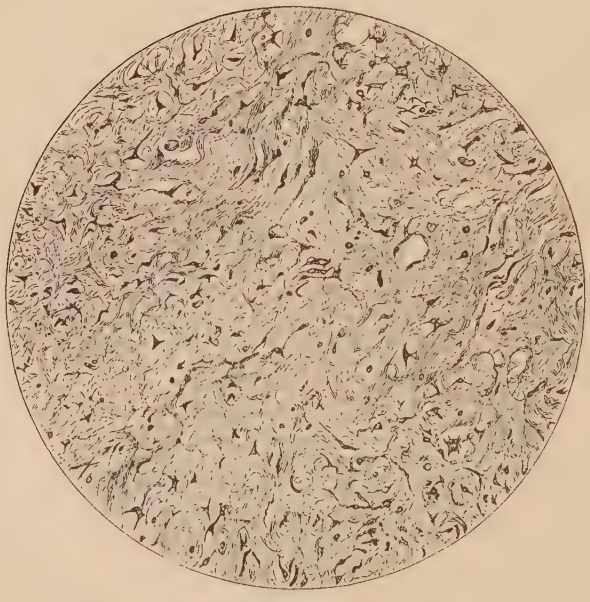


FIG. 4.—Myxoma.

some solid ovarian tumours he had found the tube in the same relation to the growth as in an ordinary multilocular cyst. Solid tumours of the kind exhibited to-night should always be removed as soon as detected. The operation is not difficult, and the tendency to recur less marked than in similar sarcomata of other organs. When allowed to grow large, these tumours became clinically if not pathologically malignant.

VAGINAL CYSTS.

By M. Handfield-Jones, M.D.

GANGRENE OF THE BLADDER FROM RETROFLEXION OF THE GRAVID UTERUS.

By Adolph Rasch, M.D.

Dr. Adolph Rasch exhibited a specimen of gangrene of the bladder due to retroflexion of the gravid uterus, from a married woman who was brought dying to the Training Hospital, Tottenham.

The patient, whilst scrubbing the floor a fortnight before, had felt something give way in her abdomen. There was complete retention of urine for thirty-six hours, followed by dribbling of urine up to her entrance into the hospital. Two medical men attending her and consulting together had neither examined her nor introduced a catheter. Dr. Ferguson, the resident physician, at once diagnosed the case, introduced a catheter, and drew off one pint of bloody urine, but finding the patient totally collapsed, abstained from any attempt at reposition. The patient died after a few hours.

At the post-mortem the bladder was found filled with blood, the walls black and sloughing in several places close to the peritoneum. There was no perforation.

Fresh peritoneal bands were found in front. The uterus, free from adhesions, could be pushed up without the slightest difficulty. There was no fluid in the peritoneal cavity.

Dr. Rasch was anxious to have the case published, as it sadly showed the still too prevalent neglect to make a proper vaginal examination and use the catheter in suspicious cases. From his experience in consulting practice he knew that these cases were not so very rare, and very often not even suspected, and some members of the Society would have had similar experience. No doubt they were oftentimes buried with a certificate of fancied inflammation of the bowels or something equally alien from the real cause of death.

Dr. Herman asked Dr. Rasch whether the peritoneal adhesions of which he had spoken in relating his case were old or recent.

Dr. Rasch said the peritonitis was recent.

INTRAPERITONEAL HÆMATOCELE AND INTRA-UTERINE POLYPUS.

By W. S. Playfair, M.D.

Dr. Playfair exhibited two specimens which illustrated the fact, familiar to all gynæcologists of experience, of the occasional existence of grave conditions of which no symptoms existed, and which could not possibly have been suspected.

The first occurred in a married woman, 35 years of age, who was admitted into King's College Hospital on account of severe pelvic pain, of which she had complained for more than a year, and which was so intense as to completely incapacitate her from following her usual avocations. She had always menstruated very profusely, and it is specially to be noticed, in view of the conditions subse-

quently found to exist, that there was no history of any sudden or acute illness. Her pain had commenced gradually and steadily ingravesced, and that was her only complaint. On abdominal palpation nothing abnormal could be felt. *Per vaginam,* in the region of the left broad ligament there was a rounded elastic swelling, about the size of a small orange. On the right side there was an indefinite sense of resistance but no obvious swelling. She was kept in the hospital for about a month, when, no improvement showing itself, it was determined to perform laparotomy, the growth on the left side being diagnosed as either a pyosalpinx or a small ovarian cystoma. On opening the abdomen it was found to be a rounded ovarian tumour, the size of a large orange, placed deeply in the pelvis, and universally adherent. On separating the adhesions considerable hæmorrhage occurred, which could only be controlled by sponge-pressure.

On the right side a totally unsuspected condition was found. There were large masses of old formed blood-clots lying loose in the peritoneal cavity, and not in any way encysted. Several handfuls of these coagula were removed. In the midst of them lay the right Fallopian tube, much thickened and enlarged, and containing one large old coagulum, the size of a big walnut, which was attached to the interior of the tube by what seemed to be a fleshy pedicle, a quarter of an inch in length. There was nothing whatever in the history of the case which threw any light on the formation of this considerable intraperitoneal hæmatocele, and yet it was difficult to imagine that it could have been formed without serious constitutional symptoms. The enlarged tube was ligatured and removed, the coagula cleared out as far as possible, the pelvis repeatedly washed out with warm water, and a glass drainage-tube inserted. During the operation the shock was very severe, and the patient became so collapsed that it was hardly expected that she could be got alive off the table. Fortunately she made a good rally, and recovered without a single bad symptom.

The second case was that of a patient who was sent home from one of the West India Islands, under the impression that she had a uterine fibroid, with the view of being treated by electricity. Her only symptom was excessive hæmorrhage, which had reduced her to a condition of the utmost prostration. The removal of the uterine appendages had been proposed, but to this she would not consent. Examination showed a uniformly enlarged uterus, freely mobile, the sound entering four inches, but no definite fibroid. The existence of an intra-uterine polypus was suspected, and the cervix was dilated with Hegar's dilators. A large pediculated fibroid polypus, about the size and shape of a Jargonelle pear was found. It was not possible to get the tip of the écraseur round this, and it had to be removed in slices. The patient appeared to bear the operation well, but the next day she suddenly collapsed and died in a few hours. It was feared that the somewhat prolonged manipulations which had been necessary had caused a laceration of the uterus. Post-mortem examination showed that there was no traumatic lesion, and that the polypus had been cleanly and entirely removed. The left Fallopian tube, however, was distended into a large sac, containing pus, which had ruptured and discharged its contents into the peritoneal cavity. It was estimated to contain five or six ounces of pus, and had doubtless burst in consequence of the traction to which the uterus had been subjected. Now, there was absolutely nothing in the history of this case which could have led anyone to diagnose the existence of the large pyosalpinx. The patient complained of no pain, nor was there any marked symptom except constant metrorrhagia. No circum-uterine tumour was felt, probably because the enlarged uterus had lifted the tube up beyond the reach of the examining finger. It was afterwards remembered that the temperature had varied between 99° and 100°, but to this no special importance had been attached.

Dr. W. Griffith said that the probable explanation of that amount of blood being found in hard masses free in the peri-

toneal cavity and without having caused any important symptoms, was that it had occurred gradually, perhaps at the menstrual periods, as the result of structural change in the Fallopian tube. The appearance of the distended and thickened tube were not those of tubal gestation, the lining membrane being smooth and its contents purely blood-clot.

Mr. Alban Doran thought that the subject of hæmorrhage into the peritoneal cavity from an open Fallopian tube was of great importance. As a rule, the ostium was closed in all inflammatory affections of the tube and neighbouring part of the peritoneum, and in hæmatosalpinx. Yet twice within the past week, and once in 1888, Mr. Doran had witnessed the removal of a tube, with masses of organised and unorganised clot filling the peritoneal cavity around a widely gaping ostium. The appearance of the fimbriæ and ostium was very characteristic and similar in all three cases. In two, the clot had organised around its periphery; thus the tube appeared to open into a cyst full of dark coagulum. In all three there was a strong suspicion of early tubal gestation. Positive evidence of ectopic pregnancy is often wanting; an early embryo is no doubt readily destroyed, especially if shot out of its ruptured cyst into the peritoneum. The absence of an embryo in hæmatocele of this kind, however, may signify that no embryo ever existed. In other words, we are not warranted in attributing hæmatosalpinx with intraperitoneal hæmatocele to abnormal gestation alone.

Dr. Horrocks said that both specimens were of great clinical and pathological interest. He thought that one explanation offered by Dr. Griffith was more likely to be true regarding the first specimen than the hypothesis of extra-uterine fœtation, for there was no post-mortem evidence of rupture of the tube and no clinical fact supporting such an idea. He asked whether the ovary removed had been examined, and if so what condition had been found. Regarding the second specimen he asked whether the patient had acute peritonitis of a general character, and also whether the ovary on the same side as the pyosalpinx was in a suppurating condition.

ANENCEPHALIC FŒTUS.

By W. S. A. Griffith, M.B.

Dr. Griffith exhibited a specimen of a monstrous fœtus with adhesion of the placenta to the skull, and other deformities, which had been recently presented to the museum of St. Bartholomew's Hospital by Dr. C. R. Walker (3451[a]).

The fœtus, a male, is generally well developed and was born at term. The placenta is proportionately large, and appears to be normal in structure. The cord is very short, measuring five inches; its structure and the arrangement of its vessels appear to be normal.

The fœtus is anencephalic and has a large meningocele in the right limb of the lambdoidal suture. It has also a double harelip and cleft palate, with macrostoma. Both eyes are defective, and the eye-slits are very small.

A portion of the amnion, with the umbilical cord at the point of its insertion into the placenta, is attached to the upper part of the base of the skull by a broad and firm band of membrane, the line of attachment running along the upper part of the hard palate.

There is well-marked left lateral curvature of the spine.

The heart is partly ectopic and contains three cavities, a large left auricle, a rudimentary right auricle, and a common ventricle, the apex of which is prolonged upwards through a fissure in the sternum, and is attached to the base of the skull immediately to the right of the single nostril; it is hollow and contains columnæ carneæ, and is covered by skin derived from the thoracic walls, and at birth was seen as a pulsating rod attached at its extremities and free in the middle.

On the inner side of the right arm, half an inch above the bend of the elbow, is a small, fleshy papilla, from which

passes a thin membranous band to the right gum of the upper jaw.

The abdominal viscera and the remaining thoracic organs appear to be natural. There is a conus arteriosus, but the branches of the aorta are normal.

The mother had previously borne one healthy living child. Nothing abnormal was noticed before the birth of the monster. The labour, which was easy, lasted six hours. About one pint of liquor amnii escaped. The fœtus presented by the anencephalic head; the placenta was expelled with the fœtus and without hæmorrhage.

Instances of this monstrosity are rare. A somewhat similar displacement of the heart with great stretching of its substance is figured in Ahlfeld's 'Missbildungen des Menschen' (pl. xxx, fig. 12). Dr. Houel records four specimens in the Dupuytren Museum in Paris, in a paper in the volume for the year 1857 of the 'Mémoires de la Société de Biologie,' series ii, vol. iv, p. 55.

He says there are only two parts of the body to which the placenta and membranes have been found adherent, namely, the cranium and the abdominal wall, of which attachments to the cranium are the more frequent. A short cord, lateral curvature of the spine, and hernia of the brain, if it is present, and of some of the abdominal viscera are also always present.

A CASE OF RETENTION OF URINE CAUSED BY PRESSURE OF A DERMOID OVARIAN CYST.

By W. S. A. Griffith, M.B.

A CASE OF CÆSAREAN SECTION FOR CONTRACTED PELVIS.

By Francis H. Champneys, M.A., M.D.Oxon., F.R.C.P.,
OBSTETRIC PHYSICIAN TO ST. GEORGE'S HOSPITAL.

(Received December 11th, 1888.)

(*Abstract.*)

The patient was a secundipara, having had a child in 1882 delivered by induction of premature labour and craniotomy at seven months. She came under notice on this occasion at the end of the seventh month.

She was a dwarf, with well-developed trunk and stunted but otherwise well-formed extremities, without any signs or history of rickets. Her height $44\frac{3}{4}$ inches. Her pelvis of the generally contracted flat variety, with a conj. vera of an inch and three quarters.

Cæsarean section (after Sänger) was performed about three and a half hours after the beginning of labour at term, the os uteri being about the size of a florin. There was no bleeding. The operation lasted eighty minutes—forty minutes to the beginning of the sutures, forty minutes to the end of the operation. The sutures were deep silver and superficial silk.

The ovaries were not removed, but the patient was sterilised by tying (and cutting through) both tubes with kangaroo tendon. The child is alive and healthy.

There was no shock after the operation. The temperature (with the exception of slight reaction on the second and third days) resembled a normal lying-in. Recovery was uninterrupted, and the patient is now quite well.

Remarks on Sänger's method and on Dr. Leopold's recent

work are appended, and the questions of sterilising the patients and of the limits of the operation are discussed.

MARGARET T—, aged 21, single, 2-para, living at home (at Lambourne, near Romford), was sent to me by Mr. E. B. Turner, of Sussex Place, January 24th, 1888, at St. George's Hospital.

She was reported as of temperate habits, and as having always had sufficient food. She was well nourished, a light brunette, and in good health.

Her height was forty-four and three quarter inches standing, and twenty-eight and a half inches sitting; her head large and square, the forehead square and protuberant, the frontal and parietal eminences strongly marked. Bridge of the nose flattened. Teeth rather crowded, but well formed. Extremities very small, but well formed, no curvature of long bones; no enlargement of epiphyses.

The patient was sharp and intelligent, though she did not look so, and was industrious and active both at home and in the hospital.

Family history.—Father and mother both alive and healthy. (Mother seen; a middle-sized, well-formed woman, with none of patient's physical peculiarities.) Patient has a brother living, five feet eight inches in height, and a sister, also of full height, and both healthy. Mother has had no miscarriages, her first child was stillborn, then came twins, one of whom died of convulsions at twelve months, the other is the brother mentioned above; then came the sister, who is living; then there was another child which died soon after birth, and lastly, the patient.

Previous history regarding patient.—The mother states: "That the child appeared normal at birth, was suckled for eleven months, had measles when a few months old, slightly; has never had any other illness, never had a bad cough." Mother first noticed that the child did not grow properly when about two years old. Patient never sweated at night as a child, or threw off the bed-clothes. She was not late or backward in walking. She never had

Measurements of bones. Margaret T—.

Clavicles.

Right.	*Left.*
4 inches.	4 inches.

Humeri.

7½ inches (acromion to ext. condyle).	7½ inches (same points).

Radii.

5⅝ inches. Very rough and prominent ridge in centre of shaft. Ridges on lower end for tendons well marked	5½ inches. Same rough ridge Same ridges on lower end.

Ulnæ.

6½ inches.	6½ inches.

Sternum.

4½ inches. Curved anteriorly.

Femora.

9 inches.	Trochanter to condyle. Both curved with convexity forwards.	9 inches.

Tibiæ.

7¼ inches.	Inner tuberosity to inner malleolus. Both curved outwards.	7¼ inches.

Fibulæ.

8¼ inches.	Heads to malleoli. Both curved outwards.	8¼ inches.

Spinal column.

Vertebra prominens to coccyx (sitting posture). 22 inches. Slight curve in dorsal region with convexity to left.

Head.

Parietal and frontal bosses well marked and very prominent. Whole vault of skull large and well developed compared with other bones of body. Bridge of nose depressed.

Measurements with callipers.

Suboccipito-bregmatic	6⅞ inches.
Fronto-occipital	6⅝ „
Mento-occipital	9⅛ „
Bi-parietal	6 „
Bi-temporal	5½ „

With measure.

Circumference round chin and occiput	24¾ inches.
„ of head over bosses	22 „
„ round chin and vertex behind bregma	23 „

any discharge from the nose, did not have snuffles or rashes as a baby or since, never had anything the matter with her eyes, was not backward in teething. When the mother was about five months pregnant with her, she was thrown from a trap, after which she had to lie up for four months, the doctor telling her that she had a displacement of the child in the womb. When patient was born the head was rather large, and labour was very long, but not instrumental. The weight at birth is not known, but she was "heavier than some babies at birth, but did not seem to grow."

Menstrual history.—Catamenia began at thirteen, lasting four days, quantity small, regular in rhythm, no pain except slight aching across loins. The same ever since, except during pregnancy.

Previous labour.—Five and a half years ago, August 3rd, 1882, craniotomy was performed in the seventh month of pregnancy at Queen Charlotte's Hospital. Patient made a good and rapid recovery.

Present pregnancy.—Last catamenia ended June 21st, 1887, having lasted four to five days, and being normal in all respects. She had no idea of the date of conception; fœtal movements about two months ago (November, 1887). Health good throughout.

March 26th, 1888 = 278 days from last day of last period.

Condition on admission.—Patient appears healthy; breasts and nipples well formed, deeply pigmented, containing serous secretion. Abdomen slightly distended, well formed, not pendulous, no divarication of recti, navel flat, a few bluish striæ above the pubes, no varicose veins or œdema of legs or feet; abdominal walls firm, containing a tumour obscurely elastic, within which was a spontaneously moving body; dextral uterine obliquity well marked. Fœtal back felt on the right, small moveable parts in the right hypochondrium and to left of navel, head felt as a small, round, moveable body above the brim.

Vaginal examination.—Cervix low down, deeply cleft

bilaterally as far as vaginal reflection. A slight bony ridge runs along the back of the symphysis pubis. Transverse diameters of pelvis seem decidedly diminished, but not so much as the antero-posterior. Promontory of sacrum slightly to left side, and very plainly felt. No prominence of bodies of sacral vertebræ or straightness of sacrum.

Measurements.

Left sp. il. to navel	8 inches.
Right sp. il. to navel	7½ „
Ensiform to pubes	15 „
Ensiform to navel	7½ „
Navel to pubes	7½ „
Circumference at navel	31½ „
Spp. Il.	8½ „
Crr. Il.	8⅛ „
Conj. vera (actual)	1¾ „
Conj. ext. (D. B.)	6 „

It was decided to wait till labour set in, and perform Cæsarean section as near the end of the first stage as possible. The patient, perhaps naturally, expected her child to be again destroyed, but this I absolutely declined to do, telling her that, if she wished it, she must go elsewhere. The patient, on having the matter explained to her, freely consented, and awaited the operation with great courage.

On March 21st, 1888, 9.30 a.m., pains began. At 11 a.m. the os internum was the size of a florin, and a small bag of membranes protruded. It was decided to operate at 1 p.m.

The vagina having been previously washed out with two quarts of corrosive sublimate (1 in 2000) and the cervix and vagina well scrubbed with a swab of cotton-wool soaked in the same solution, the abdominal wall was well washed with soap and water, and covered with a pad of gauze soaked in corrosive sublimate (1 in 1000).

At 1.10 p.m. an incision was made in the anterior abdo-

minal wall six inches in length, two above and four below the navel, three silk sutures were inserted into the upper two inches of the wound, and temporarily held by clip forceps.

The uterus was centered, *i. e.* all obliquity was obliterated, and its middle line brought into coincidence with the wound.

The closer attachment of the peritoneum to the lower uterine segment was marked.

An elastic india-rubber tube was laid loosely round the lower uterine segment. A flat sponge was laid behind the upper part of the wound, and the uterus covered with a towel wrung out of hot corrosive sublimate solution.

The uterus was then incised in the middle line, beginning at the fundus, and stopping short of the closer attachment of the peritoneum, so as to avoid the lower uterine segment. No hurry was made in the incision; layer after layer was divided by the knife, the fibres retracting as divided, and no serious hæmorrhage occurring. The tissues were very juicy and succulent.

Before the membranes had been quite reached, the retraction of the uterine fibres gently tore through the innermost layer of the uterine wall, and the membranes bulged. The incision was completed upwards and downwards, and the membranes ruptured, a little liquor amnii escaping, but little if any going into the peritoneal cavity, as the assistant hooked up the upper and lower angles of the uterine wound, and kept the uterus against the abdominal incision.

The fœtal head could not be easily brought upwards, so a foot was seized and the child extracted without difficulty. It was during this time that the only bleeding of any consequence occurred, but the whole loss was estimated at not more than eight ounces. The placenta was on the posterior wall.

As soon as the fœtus was extracted, a sponge was placed in the lowest part of the cavity, the elastic tube was tightened round the lower uterine segment, and at once

completely controlled the hæmorrhage. The placenta was found detached, and, together with the membranes, was easily removed, the inner walls of the uterus being thoroughly sponged with an antiseptic sponge, and several sponges being packed into the uterus.

The suturing of the uterine wound was then proceeded with. The peritoneum was quite loose, and no resection of the uterine wall was necessary.

Some ten silver sutures were inserted through the uterine wall, avoiding the cavity by some eighth of an inch, and emerging some half an inch on each side of the incision. The elastic ligature was then removed, a little oozing taking place into the uterine cavity, and a very little from the uterine wound. The ligature had caused a well-marked hour-glass contraction, which had to be dilated with the fingers before the sponge could be removed from the lowest part of the cavity. On removing it, it was found covered with membranes. The other sponges were removed; the uterine cavity was well scrubbed with an antiseptic sponge, and a douche of 1 in 2000 corrosive sublimate, at a temperature of 112°, was run through the cervix and out through the vagina into a bed-bath. The cavity of the uterus was, lastly, well dusted with iodoform. The silver sutures were then closed by one tie and about four twists, and were then cut short.

About four fine silk interrupted sutures were inserted between each pair of deep sutures, transfixing the peritoneum twice (Czerny-Lembert), and were tied and cut off. It was found that they completely buried the silver sutures, and it would have been possible to have buried these again by others above them, so slack was the peritoneum.

It was also observed that there was no tendency to hæmorrhage, though the uterus was comparatively flabby.

An aneurysm needle was passed round each tube about half way along its course, where it was still round and narrow, and before it began to expand into the ampulla. The aneurysm needle was armed with kangaroo tendon, and tied tight, the ligature cutting completely through the

tube. The broad ligament was much hypertrophied and loose, and the vessels, though enlarged, left wide spaces almost everywhere, through which one or two fingers might, if necessary, have been thrust without encountering a visible blood-vessel. The aneurysm needle included no visible vessel or other structure, and when the tube was cut through by the ligature there was no bleeding.

The uterus was replaced anteverted, with bowels behind, the uterine incision was dusted with iodoform, the abdominal incision closed by sutures of salicylic silk and dusted with iodoform; pads of dry carbolic gauze, covered by cotton-wool, secured by strapping, more cotton-wool and then a many-tailed flannel bandage completed the dressing.

The time from the first incision to the beginning of the sutures was forty minutes. From the beginning of the sutures to the end of the operation was forty minutes more.

Two points were forgotten during the operation:

(1) The uterus was not turned out of the abdomen and the upper sutures closed behind it.

(2) It was intended to leave an Ehrendorfer's iodoform bougie in the uterus.

The omission of closing the upper abdominal sutures caused the omentum to get entangled with them, and they had to be inserted afresh.

On another occasion I should probably use chromic catgut for the uterine incisions altogether, thicker and interrupted for the deep, and finer and continuous for the superficial sutures, and I should turn the uterus entirely out of the abdominal cavity before incising it.

Mr. G. R. Turner assisted, and Mr. Pick also lent me a hand.

The child was a female, $20\frac{1}{2}$ inches long, and weighing (twenty-one hours after birth) 6 lbs. $11\frac{1}{2}$ oz.

Measurements of head (in inches).

	March 22.	April 17.
Bi-parietal	$3\frac{5}{8}$ ...	$3\frac{7}{8}$
Bi-temporal	$2\frac{7}{8}$ ...	$3\frac{1}{8}$

	March 22.		April 17
Bi-mastoid	$2\frac{1}{2}$	...	$2\frac{3}{4}$
Fronto-occipital	$4\frac{3}{8}$	...	$4\frac{3}{4}$
Mento-occipital	$4\frac{7}{8}$	...	$5\frac{1}{4}$
Suboccipito-bregmatic	$3\frac{7}{8}$	...	4
Suboccipito-frontal	$4\frac{3}{8}$	...	$4\frac{5}{8}$
Circumferences :			
Fronto-occipital	$13\frac{1}{2}$	...	14
Mento-occipital	$13\frac{3}{4}$	...	15
Suboccipito-frontal	$13\frac{1}{2}$	...	14

On April 6th the sagittal suture and upper inch of right limb of lambdoid suture were seen to be separated to the extent of $\frac{1}{4}$—$\frac{1}{8}$ inch. Eyes not prominent. No malformation; no bulging of sutures or fontanelle. On May 16th, however, there was no unusual separation of any suture.

The child would not take the breast, and had to be fed by the bottle.

Subsequent course of the case.

Shock.—None.

Temperature.—This was subnormal for a few hours after the operation, rose on the second day to 100·7°, on the third day to 101°, on the fourth day it became normal, on the fifth day it rose to 100° (the breasts becoming full), on the sixth day to 100°, on the seventh day to 99·4°, on the eighth day to 99·2°, from which time it never rose above 99°.

Pulse.—For a short time after the operation the pulse was 140, on the second day it varied between 136 and 128, on the third day between 128 and 100, on the fourth day between 96 and 86, on the fifth day between 88 and 80, on the sixth day between 100 and 86 (breasts full), on the seventh day between 104 and 82 (same cause), on the eighth day 88, on the ninth day between 88 and 80, after which time it varied between 88 and 68. It was never feeble.

Respirations.—Never rapid.

Lochia.—Never offensive, at first smelling strongly of iodoform. Red and scanty for two days, after which there was nothing but a slight pink staining till the fifth day, when the quantity became less scanty, though still scanty, and red instead of pink. On the sixth and seventh days slightly brownish, on the eighth day absent, on the eleventh day a slight brownish discharge till the fourteenth day, when they finally ceased.

Vomiting.—Patient vomited slightly for some four hours after the operation, again, very slightly, on the third day. On April 18th (a month after the operation) she had a transient bilious attack.

Pain.—There was a little pain in the abdomen, for the first two days, at intervals, and probably due to uterine contractions (after-pains) intensified and excited by the presence of sutures. From this time, for a few days, there was occasional complaint of slight pain, but no tenderness, and the abdominal walls moved well on respiration.

Bowels.—On the third day the patient had three doses of white mixture (Mag. Sulph. ʒj, Mag. Carb. gr. xx), without effect; on the fourth day an enema was given, and was followed by eight loose motions, after which the bowels became spontaneously quiet. After this they were opened as after a natural confinement, medicine being given when required

Micturition.—The urine was passed naturally on and after the second day, when it was densely crowded by lithates as usual.

Diet.—An ounce of cold water in the evening of the operation, and eleven ounces of hot water during the night; on the second day very small quantities (ʒj) of milk, water and tea. On the third day, milk four ounces, beef-tea four ounces, tea two ounces, water two ounces. On the fourth day, milk one pint, beef-essence two pints, one egg, bread, a tin of Brand's essence. From this time ordinary diet.

Medicines.—A little morphia *sub cutem* the first two days; after this nothing but aperients.

The Surgical Progress.

On April 6th (seventeenth day) the incision was found completely healed, measuring $4\frac{3}{4}$ inches, 2 inches of which were above the navel. The stitches were removed.

Per hypogastrium.—Somewhat to the right side, rising somewhat above the level of the right anterior superior spine, is a rounded, displaceable, insensitive tumour, probably the uterus.

Per vaginam (rectum loaded).—Cervix far forwards, immediately behind the middle of the symphysis pubis. Os pointing downwards; cervix short, and its involution complete, not admitting finger.

Bimanually.—The body felt *per hypogastrium* is the uterus. It appears to be 4 inches long.

The wound was dressed with iodoform and iodoform gauze over which broad strips of strapping, and a many-tailed flannel binder over all.

On April 17th (twentieth day) the uterus felt of the unimpregnated size.

On April 24th (thirty-fifth day) patient and baby went to the Convalescent Hospital at Wimbledon.

On May 16th on her return (eight weeks after operation):

Per hypogastrium.—Above the body of the right pubic bone rising nearly midway to the navel is a rounded, not tender body, apparently the uterus.

Bimanually.—Uterus small, freely displaceable in its present situation; a hard ridge is felt on the front of its upper part (? the sutures).

Sound.—Concavity forwards, 3 inches; can be freely rotated, does not grate against anything.

The patient left home the same day, very grateful for her own welfare, but less grateful for that of her child.

The progress of the case will be seen to have resembled in essentials that of a healthy lying-in.

Subsequent history.—On October 25th, 1888, in answer to inquiries, the patient states that the catamenia returned

the first week in June (eleventh week after operation) and have returned the first week in every month since, lasting four or five days, moderate in quantity, exactly as before the operation. The patient says she is as well and strong as ever, the only difference being that she sometimes feels a pain at the bottom of the abdomen which she never had before the operation (? the sutures). The baby is quite well and a fine baby ; the sutures are "nearly closed" (*i. e.* they are not separated).

Remarks on Sänger's Method.

The latest authoritative writing on this subject is from the pen of Dr. Leopold, of Dresden ('Der Kaiserschnitt,' Stuttgart, 1888), and a few remarks on this paper are here appended.

With regard to the sutures, Dr. Leopold has given up silk for chromic catgut, for two reasons: (1) in view of the future welfare of the uterine scar, (2) in view of the "subsequent pregnancies which are to be hoped for," the great defect being that none of the women in whom silver sutures were used have become pregnant again.

This view will strike the English reader as peculiar.

We read accounts in Dr. Leopold's paper of women who appear to regard a second Cæsarean section without apprehension, indeed apparently with pleasant anticipation. Whether this depends on exuberant philo-progenitiveness on the part of Saxon women, on the comfort of their surroundings in hospital, or on the skill and management of the operator, it would be hard to say.

It seems, however, quite contrary to the ideas which are generally entertained, and I felt it my duty to do my best to sterilise my patient. To do this it is not necessary to remove the uterus by Porro's operation, nor to spay the patient, but simply to render the Fallopian tubes impervious is enough. This was done in my case by tying a kangaroo tendon ligature tightly round each. The tissue of

the tube was cut through by the ligature, and I think it inconceivable that its calibre should be re-established.

Dr. Leopold's mortality has been two out of twenty-three, or 8·6 per cent., a most excellent result, due chiefly to three causes, namely, timely operation, the method of suturing, and antiseptics.

A point which requires explanation is the time at which the operation was performed. In several cases this was many hours after the escape of the waters, and this again is bound up with another question, the size of the pelves.

In three of his cases the indication consisted in the presence of new growths, fibroid in one, cancer of the cervix in two. In the remaining twenty cases the indication consisted in pelvic contraction.

The advancing success of Cæsarean section has practically put an end to its limitation to cases of "absolute" contraction, that is to cases where delivery *per vias naturales* is impossible, and its limits have extended upwards into the class of "relative" contraction, that is, of difficult extractions after cephalotripsy or cranioclasm. The settlement of this limit is a matter of great ethical difficulty. If it can be shown that Cæsarean section in a given case is no more dangerous than craniotomy, Cæsarean section should be done. But it is doubtful how far "desire for offspring" renders it justifiable where craniotomy is safer, except in those difficult and painful cases of cancer where the mother is doomed to certain death, and is therefore, to all intents and purposes, moribund.

In England the opportunities for Cæsarean section are sure to be limited in comparison with many parts of the Continent, on account of the comparative absence of the "English disease," which accounts for the vast majority of deformed pelves. Craniotomy is really very rare. I should like to ask the Fellows present how often they have perforated in their lives, how often in a year, how often in the same patient. The perforating obstetrician, who is pictured for us from time to time, is altogether out of date, extinct as the dodo, and only survives in the

truthful minds of those who "have seen hundreds of such cases," and who "never lost a patient."

What the limits of Cæsarean section are cannot now be laid down. They may expand as the operation improves.

We do not, in the meanwhile, agree with the view that Cæsarean section is likely ever to abolish craniotomy within the limits of between three and two and a half or even two inches. For if it be conceded that increased experience is likely to reduce still further the risks of Cæsarean section, the same must be allowed as regards craniotomy within those limits, for a certain number of women do actually die after, though not necessarily in consequence of, craniotomy. If it be conceded that the mortality of timely craniotomy is even now *nil*, Cæsarean section must, it would seem, always remain the more dangerous.

In Dr. Leopold's paper Cæsarean section is defined as "absolutely" or "unconditionally" indicated at full time (S. 151) with a conjugate of 5½—6. cm (practically = 2½ inches) or less; "relatively" or "conditionally" with a conjugate between 5½—6 cm.—7½ cm. (2½—3 inches).

Two of his cases (Nos. 15 and 19, SS. 142 and 144) had a true conjugate of 3 inches.

Considering that 3 inches in the conjugate is the usual limit of live birth at full time, the above definition seems to shut out craniotomy altogether.

This is not the conclusion of Dr. Leopold, whose paper forms one of a series comparing the relations of induction of premature labour, turning and extraction, perforation, and Cæsarean section in contracted pelves, and who leaves the question of their relations still open.

The maternal deaths (S. 172) in each are as follows:

Induction of premature labour	1 : 45 = 2·2	per cent.
Turning and extraction .	4 : 83 = 4·8	„
Perforation . . .	2 : 71 = 2·8	„
Cæsarean section . .	2 : 23 = 8·6	„

Into this question of the choice between these various modes of delivery we do not purpose here to enter. We

would merely point out that there is some maternal mortality even in the induction of premature labour and craniotomy. We have, however, no doubt that the days of delivery by craniotomy and any mode of extraction in pelves of a serious amount of contraction (say a conjugate below 2½ inches) are past. In saying this we refer to flat and generally-contracted-flat pelves; in other forms the argument applies even more forcibly. We do not think that Cæsarean section has, however, proved its rights over pelves whose conjugates measure more than 2½ inches, though we do not deny that in some cases it may be justifiable.

Lastly, a question arises as to the nature of the pelvic deformity.

On looking at the patient, and seeing her short stature and the shape of her head and face, the first suggestion is rickets. But rickets is so common a cause of short stature and pelvic deformity that it is natural to think of it first.

On examining the patient's skeleton, moreover, no further sign of rickets are seen, the only possible indication being the prominent ridges on the radii noted above. The bones are not strongly curved, there is no enlargement of the epiphyses, there is no sign of rickets in the pelvis, except smallness, and flattening, which may be accounted for by unequal growth.

As regards her history, the mother is positive that she did not sweat at night, that she was not late or backward in walking, nor in teething.

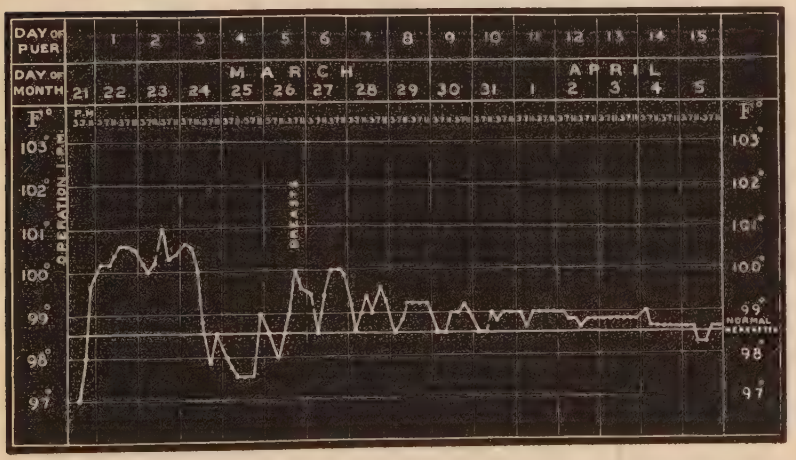
The skeleton corresponds with the deformity called by Foerster (Missbildungen, S. 64) "micromelus," in which the extremities are well formed but small, a rare condition, and one not equally distributed, in most cases, over the skeleton. In this case the trunk was that of a fairly grown woman, the extremities those of a child. The extremities include (of course) the shoulder and pelvic girdles. In this connection it was noted that there was no pendulous belly.

The history also excluded congenital syphilis. There were never any rashes, snuffles, or affections of the eyes. The patient is the youngest child in the family, all the others being well grown and healthy.

The question arises as to the accident which befel her mother when about five months pregnant. This might conceivedly have disordered development, and it does not belong to the class of maternal impressions, which, moreover, usually concern a period of pregnancy which is too late to effect the deformities laid to their charge.

We conclude that the skeleton is that of a micromelus that is a person with well-grown trunk, but stunted extremities.

A Table copied from Leopold, for convenience of reference, and a temperature chart, are appended.



Name and date.	Age and No. of labours.	Former labours.	Indication (absolute or relative).	Duration of labour previous to operation.	Condition up to operation.	Preparations for operation, rupture of membranes, condition of os uteri.	Details, sutures, &c.	Result.		Duration of operation.	Progress.		Subsequent history of mother and child.	Remarks.
								Mother.	Child.		Mother.	Child.		
M. T. Mar. 21, 1888	21, single, 2-para	Craniotomy at 7th month	Generally-contracted-flat pelvis ("micromelus," not rickety). Absolute indication: Spp. Il. = 8½ in. Crr. Il. = 8½ D. B. = 6 C. vera = 1¾	3½ hours	Good; 3 times examined; strict antisepsis	Os internum size of a florin; membranes not ruptured	No resection of muscularis; 10 silver, 40 fine silk sutures	Recovery	Alive; length 20½ in., weight 6 lbs. 11½ oz., horizontal circumf. of head 13½ in.	80 min.	Normal; left hosp. 35th day; uterus small, felt moveable above right pubic bone	Normal (cow's milk)	Both quite well; menstruation normal	Recovery like a normal lying-in.

Dr. Playfair congratulated Dr. Champneys on the result of his interesting case, which was altogether beyond criticism. There was no fact in modern obstetrics more interesting than the revolution in our estimate of the risks and possibilities of the Cæsarean section, which had been effected by the application to it of the antiseptic principles of modern surgery. From being a despairing resource only resorted to in the last extremity, with little real hope of success, it was now legitimately performed, often as an operation of selection, and with results in the hands of such men as Leopold and Sänger which were really brilliant. To Professor Sänger great credit was due for impressing on his profession the importance of his antiseptic principle in this operation. He doubted, however, if the custom, now so prevalent, of calling this "Sänger's operation," as if it was something new and altogether different from Cæsarean section, was justifiable. The question as to the performance of Cæsarean section as an operation of election when craniotomy was possible, was one of great difficulty. It is not to be forgotten that a rigid antisepsis may lessen the risks of craniotomy also, and, on the whole, it is not likely that the latter operation will be supplanted by the former, the performance of which, in the method now alone admissible, implies considerable surgical experience and aptitude. Dr. Playfair was inclined to agree with Dr. Champneys that the uterine suture could be quite safely made by strong chromic gut, which was perfectly reliable and quite unyielding. He had never been able to divest himself of apprehension as to the safety of leaving a number of unabsorbable metallic sutures in the uterine tissues. Dr. Champneys' method of sterilising the patient by dividing the tubes was ingenious and original. He was not, however, sure that it was quite free of subsequent risk to the patient, for the Graafian follicles would mature, and discharge their contents into the peritoneal cavity, the maternal oviducts being obliterated, from which one could easily imagine mischief, such as hæmatocele or pelvic peritonitis, might result. The removal of the ovaries and tubes would scarcely add at all to the risk of the operation. He was quite in accord with Dr. Champneys as to the advisability of sterilising the patient under such conditions, and could see no valid objections to its being done, but he would prefer to remove the ovaries as well as the tubes.

Dr. Herman said that Dr. Champneys had mentioned as an "omission" in his operation that he did not turn the uterus out of the abdominal cavity. The advantages of turning the uterus out of the abdominal cavity were, the more sure prevention of blood and amniotic fluid entering the peritoneal cavity, and the greater ease of suturing, but it had the disadvantage of entailing long exposure of the uterus, and prolonged exposure of viscera

was, as Olshausen had shown, inimical to good recovery. Dr. Champneys had evidently succeeded, in spite of the difficulty, in keeping the peritoneum free from the entrance of foreign matters, and in putting in the sutures, although he did not turn out the uterus, and he (Dr. Herman) thought that this "omission" must really have contributed to success. He did not see what advantage was gained, if the patient were sterilised, by leaving the ovaries, and he thought the sterilisation would have been more certainly effected if the uterine appendages had been completely removed. The question as to the ulterior effect of removal of the ovaries was a very large one, and our knowledge about it was imperfect, but so far as he was aware, no ill effects had been proved to follow the removal of the ovaries in adult women beyond those that resulted from their being sterilised. If the ovaries after sterilisation were left they could not fulfil their main function, and were, so far as our knowledge went, useless superfluous organs, but they were still liable to disease. By removal of the ovaries the patient was not only effectually sterilised, but protected from ovarian tumours and other diseases of these organs.

Dr. W. Griffith wished to criticise one statement of Dr. Champneys, namely, that in future he would use chromicised gut in place of silver wire. He asked Dr. Champneys what where the fundamental points in the method of operating which had revolutionised the results? They were rigid cleanliness and the use of a suture in the uterine wall that would remain safe in spite of the frequent contractions and relaxations of the uterine wall. No details were so important as these, and there was no safety for the women without them. He had seen the disastrous results in one case in which at the post-mortem examination only the lower two of eighteen sutures remained tied; the rest were all completely untied, and the uterine wound was widely gaping. Silver wire and silk are known to be safe in this respect; each had its disadvantages, but silver wire was probably best for most operators, whose chances of doing this operation must be very few.

Dr. Lewers (who was present at the operation referred to by Dr. Griffith) asked Dr. Griffith if the catgut used was ordinary carbolised catgut, or chromic catgut, as it made all the difference which was used. His own recollection of the case was that the sutures were of ordinary carbolised catgut, and not of chromic catgut.

Dr. Horrocks congratulated Dr. Champneys on the great success of his case. He believed the time was coming when a patient would elect Sänger's operation as less dangerous to herself than craniotomy performed on the child. The number of times obstetric physicians were called upon to perform craniotomy

was very small, and as a matter of fact it was found that the same patient had craniotomy performed time after time. He quoted a case where he had performed cephalotripsy in a woman who had had it performed twice by Dr. Braxton Hicks, and twice by Dr. Galabin. In another case he performed cephalotripsy in the last confinement but one of a woman with a very narrow pelvis. At her last confinement Dr. Galabin induced labour at the seventh month, but found it impossible to deliver without mutilation. This woman was again pregnant nearly four months, and he had asked her to go on to full term and then have Sänger's operation performed, but she positively refused, and therefore it was decided to bring on a miscarriage. He agreed with Dr. Herman that it was better to leave the uterus inside the abdomen during the operation, not only for the reasons already given, but also because when lifted outside it got into anteversion more or less, and so the placental site would be more probably cut down upon. He considered the elastic ligature one of the most important improvements in the operation as it controlled the hæmorrhage completely, and he asked for further details as to its mode of application. He could not agree with Dr. Herman and Dr. Playfair that removal of the ovaries and tubes would be preferable to ligaturing the tubes as had been done in this case; for in the first place it would take a longer time,—there was more risk of hæmorrhage and of subsequent inflammation, and above all the woman, as a woman, was much more damaged by the loss of these appendages than by the mere ligaturing of the Fallopian tubes, and yet this was undoubtedly quite efficacious in sterilising her, an effect which it seemed justifiable to obtain. As regarded the ligature of the tubes it was very interesting physiologically to note that the patient had begun to menstruate again in a perfectly regular manner, each period lasting three or four days as before the operation. It had been asserted that menstruation was affected very much by a nerve or nerves running alongside the Fallopian tubes to the uterus, and there would have been included in the ligature at least some of them almost certainly, and hence the value of the clinical observation after this quite original operation.

Dr. Braxton Hicks remarked that this case did not decide the point, as regards the mother, which of the two operations was better, for in the first labour craniotomy was successful, and the second was also Cæsarean section. Of course the life of the child would be an important point in guiding our decision. But in this case, with a conjugate of one and three quarter inches, there would be considerable difficulty in delivering unless in experienced hands, and Cæsarean section would be much easier and probably safer.

Mr. Alban Doran said that, as regarded the ligature of the tubes, Dr. Champneys no doubt did this with skill and care; still, meddling with the uterine appendages was very dangerous, especially in pregnancy. Several immediate or distant evil consequences might follow. Mr. Doran believed that complete removal of the appendages was preferable to this new method in every respect.

Dr. Heywood Smith considered one of the most important points of the paper was the novel method of sterilising the patient by ligaturing the oviduct, and he also, as Dr. Horrocks had done, would draw special attention to the position of the ligature, associated as it was with the persistence of menstruation, as it tended to throw some light on the investigation going on in another Society on the question of the causation of menstruation. He considered that the removal of the appendages would have added a fresh, though slight, risk to the operation, as there would have been the danger of the ligatures slipping. He wished to ask why in this case Porro's operation was not performed? It was less risky than Cæsarean section, and, which is an advantage in these cases, could be performed much more rapidly. He was strongly of opinion that when a pelvis was so deformed that parturition exposed the woman to very grave danger and the fœtus to certain death, some method of sterilising the woman should be had recourse to, whether by Porro's operation or some other method. It seemed useless to threaten, or warn, or exhort some women in this matter, and it must have been within the experience of many who had held appointments in lying-in hospitals that in spite of all that had been said to them, some women, especially among the uneducated, obstinately persisted in going their full time with the mistaken idea that, being more natural, it was the safer plan. If a patient came under observation after the third month, he should recommend her going the full time, and then having Porro's operation performed as likely to save two lives and prevent further risk of mischief.

Dr. John Phillips mentioned a case under his own care. Owing to a large fibroid in the posterior uterine wall becoming impacted in the pelvis, this mode of delivery was rendered necessary. Eventration and the use of the elastic ligature were here impossible, and yet control of hæmorrhage and insertion of the stitches was quite easy. He did not lay so much stress therefore upon these two steps as others had done. Two sizes of silk were used for the sutures, and post mortem the uterine incision was found perfectly united. Death was due to causes apart from the question under consideration. He preferred silk to the silver suture. His own experience of chromic catgut had not been satisfactory.

Dr. Cullingworth inquired what objection there was to the

use of silk ligatures for suture of the uterine wound. In the case which he communicated to the Society in 1887, he used stout silk for the deep sutures and fine silk for uniting the peritoneum. The patient unfortunately died (from disease of the kidneys) twenty-nine hours after the operation. On examining the body the edges of the wound were found in perfect apposition, all the sutures having remained tight. In the case mentioned by Dr. Phillips, the evidence in favour of the reliability of silk was even stronger, as the patient in that instance had survived the operation four days, and still all the sutures were found absolutely secure. He could not help feeling to have more confidence in silk than in catgut, on account of its greater durability and the less liability of its slipping. Mr. Ballance had made some important experiments as to the comparative durability of the various materials of animal origin used as ligatures, and had obtained some very striking results which would no doubt be published very shortly, and would be of the greatest possible value to operators. With regard to lifting the uterus out of the abdomen during the operation, the desirability of which was doubted by Dr. Herman, he could only say that in his case he found it greatly facilitated the necessary manipulations, especially the suturing of the uterine wound. He would like to ask Dr. Champneys if any particular object was served by making the uterine incision slowly, instead of quickly, as was generally advised. He thought Dr. Champneys would be able to give a very good reason for preferring, in this instance, Sänger's operation to Porro's.

The PRESIDENT said that, with regard to the choice between Sänger's and Porro's operation, he had been led to believe, with Dr. Champneys, from the results obtained at Dresden and Leipzig, that Sänger's operation was always to be preferred unless the uterus was already damaged by prolonged labour; and that it might establish its claim to preference even in that case. He was rather surprised, however, at recent statistics as reported to him in a letter from Dr. Harris, of Philadelphia, which ran as follows:—"In 1887 there were 47 Sänger-Cæsarean operations with 10 deaths. The record of 1888 as far as collected shows 45 cases with 13 deaths. Thus far the record of the last four years shows a mortality under the Porro-Cæsarean operation of about 19 per cent. The record of the same period for the Sänger-Cæsarean cases is 138, with 37 deaths, or a mortality of over 26 per cent." These statistics therefore showed the advantage to lie on the side of the Porro operation in general, though it could not compete with the results of the Sänger operations at Dresden and Leipzig. But it must be remembered that of late it had been generally chosen in unfavourable cases, when labour had been prolonged, and that

it had not been developed and cultivated in one or two hospitals like the Sänger operation. In Britain, of five Porro operations within the last three years all had been successful, while the Sänger operation had not yet had such success. He should still prefer the Sänger operation as a primary choice, but he thought that these figures showed that, under certain circumstances, much might be said for the other alternative.

In reply Dr. CHAMPNEYS said that he hoped that the opinions expressed by Dr. Playfair with regard to the credit due to Sänger for the improvements in the operation of Cæsarean section would not go forth as the judgment of the Society. It was, of course, true that antiseptic surgery was not Sänger's invention, nor was the musculo-muscular and sero-serous suture, and it may have occurred to others that it was hardly fair to postpone Cæsarean section till the woman was in a condition of neglected labour. Still, it was not until Sänger called attention to principles and details, and acted on his own method, that improvement began, and he thought it was highly unjust to attempt to deprive him of the credit, or to refuse to associate his name with the improved operation. If anyone were still in doubt, let him compare statistics before and after Sänger's writings. He would answer the questions regarding the sutures together. He used silver because it was the material recommended by the most successful operators up to that time. He had not then seen Leopold's paper, in which it is stated that Dr. Leopold has changed the deep sutures from silver to chromic gut, and that they have answered perfectly. He thought that silver was perfectly unobjectionable, as the experience of some years had shown, and the objection of Leopold, that it seemed to prevent subsequent pregnancy, was (if valid) a real advantage. He thought that Dr. Griffith had for the moment confused chromic with carbolic gut, the behaviour of the two being quite different. Silk for the deep sutures seemed to him inferior both to silver and chromic gut; it was rather apt to cut, and he should never employ it for the deep sutures. For the deep sutures the choice lay between silver and chromic gut, for the superficial sutures between chromic gut and silk. As to tying the tubes (and this was really the most interesting part of the operation, being a physiological experiment, though, he thought, a perfectly safe one) he thought some of the speakers had somewhat erroneous notions of the condition of the broad ligament at the end of pregnancy. It was much hypertrophied, very loose, and the vessels, although enlarged, left great spaces almost everywhere, through which a finger or fingers might, if necessary, be thrust without encountering a visible blood-vessel. He chose a spot about half-way along the tube, where it was small and round, and before it began to expand towards the ampulla.

There was plenty of room to pass an aneurysm needle round the tube close to it, without including any vessel or other visible structure. As to the removal of the ovaries he could not agree with Dr. Herman that that was a matter of indifference. It was true that some women might be better without ovaries, others might be as well without them, but he thought that there could be no doubt that in some cases their removal was followed by profound and disastrous changes, not only mental. He thought Mr. Doran was unnecessarily apprehensive of the results of ligaturing the tubes, and could not but think it a far less serious matter than removing the ovaries. The plea for their removal with a view to preventing disease (cystic or other) would, if carried out logically, deprive persons of both sexes of most of their accessible viscera. He thought it would be quite time to deprecate ligature of the tubes when harm followed, and he should do the same on any future occasion unless something untoward occurred to this patient. Turning the uterus out of the abdomen was, he thought, a distinct improvement. It was not hard to keep it warm by warm towels, it was much easier to keep fluids out of the peritoneal cavity, and also to insert the sutures. The upper abdominal sutures should be closed as soon as the uterus is turned out, and there is plenty of room to replace it after it is emptied. To Dr. Horrocks he replied that he did not refuse to procure abortion in this case, but the patient did not present herself till the seventh month. The choice in a pelvis of this size seemed to be between early abortion and Cæsarean section. The elastic ligature was a piece of rubber-tubing about the size of the little finger. It was tied in a single knot and the ends were clipped by a pressure-forceps. He removed all sponges before closing the uterus. As to bleeding there was none (not a teaspoonful) during his deliberate incision through the uterus; it was not till rupture of the membranes relieved the pressure that bleeding began. On removing the elastic ligature he was surprised that no bleeding took place. The uterus was not hard, nor was it small. It seemed to him to illustrate the condition a few hours after delivery, when the uterus is large and not hard, and yet there is no bleeding. Dr. Cullingworth called attention to the author's "very slow incision," but he had not intended to convey this impression. He did not hurry himself, as he knew that the uterus did not bleed at this time, and he could not see what was to be gained by a rapid incision—there could not have been less than no bleeding. When the uterus was completely opened then he did hurry. To Dr. Heywood Smith he replied that he thought we had nothing whatever to do with the question of the woman's moral responsibility for becoming pregnant with a pelvis which would not let a viable child pass. We gave our

patients advice; if they did not follow it we had nothing to do with appraising their moral responsibility, but our duty was to get them out of their difficulty. To the President he replied that the statistics of Cæsarean section and Porro's operation were just now in a very confusing condition. He should prefer in the meanwhile to compare series performed by a competent operator, but he might say that the statistics of Cæsarean section in good hands were so good that he thought Porro's operation should be restricted to damaged uteri. He begged to thank the Society for the attention which they had given to his paper.

MAY 1st, 1889.

Alfred L. Galabin, M.D., President, in the Chair.

Present.—35 Fellows and 3 Visitors.

Henry Douglas Johns, L.R.C.P., was admitted a Fellow of the Society.

William Carnegie Brown, M.D.Aber. (Penang) ; Frederick Hall, M.D.St. And. (Leeds) ; and John Wayte, M.A., M.B.Oxon. (Croydon), were declared admitted.

The following gentlemen were elected Fellows of the Society:—Edward Octavius Croft, L.R.C.P.Lond. (Leeds); Harold A. Des Voeux, M.D.Brux. ; Charles John Harper, L.R.C.P.Lond. (Finchley) ; George Robert Lake, M.R.C.S.; Richard Pinhorn, L.R.C.P.Lond. ; David Thomson Playfair, M.D., C.M.Edin. (Bromley, Kent) ; Abraham Wallace, M.D.Edin. (Upper Norwood) ; Charles Henry Whitecombe (Westerham) ; and Arthur Henry Williams, M.A., M.B., B.C.Cantab. (St. Leonard's-on-Sea).

Report on a Specimen of an Aborted Ovum exhibited on February 6th, 1889, by Dr. John Phillips, showing Cysts in the Decidua Vera.

The specimen comprises the fœtus and the fœtal and maternal membranes, at about the third month of pregnancy.

The only part requiring special investigation is the decidua vera, which exhibits on its deep surface numerous cysts of the size of small peas, and some much smaller.

Owing to decomposition, microscopical examination is useless, but the cysts are evidently such as are frequently found of a smaller size in the decidua. They have been described by Montgomery ('Signs and Symptoms of Pregnancy,' 1837, p. 133, plate ix, fig. 1), and have been investigated by Sir W. Turner ('Lectures on the Comparative Anatomy of the Placenta,' 1875, p. 32), who concludes that they are not dilated glands, but depressions for the reception of chorion villi.

F. H. Champneys.
John Phillips.
Walter S. A. Griffith.

Report on Dr. Playfair's Specimen of Small Ovarian Cyst and Hæmatosalpinx.

The small cyst of the left ovary measured two inches in the long, and one-and-a-half in a vertical diameter. It was unilocular, but a band ran across from one side to the other, completely traversing the cavity. This band represented a septum. On the surface of the cyst ran the Fallopian tube, no mesosalpinx separating the two structures. The fimbriæ were effaced, and the ostium was closely applied to the surface of the cyst. A crescentic, valve-like fold of the inner wall of the cyst lay opposite the point of adhesion of the ostium. There was no actual communication between the tube and the cyst, although after slight pressure against the valve a probe could be passed into the canal of the tube. This specimen represented a stage in the formation of tubo-ovarian cysts. The ovary had been reduced to a mere shell, the tube had swollen

and forced asunder the layers of the mesosalpinx so as to touch the cystic, degenerate ovary, and a communication had been formed between them. This "permanent adhesion due to adhesive inflammation" is described at length in Dr. Griffith's paper on "Tubo-ovarian Cysts" in the Society's 'Transactions,' vol. xxix, 1887, p. 273. The stages of those changes in chronic inflammation of the uterine appendages which cause the development of a tubo-ovarian cyst are described by Mr. Doran in the 'Transactions of the Pathological Society,' vol. xxxviii, 1887, p. 241, and ibid., vol. xxxix, 1888, p. 203. In the latter page, an account will be found of incipient communication between a dilated tube and a cystic ovary, appearing as a crescentic valvular elevation on the inner wall of the ovarian cyst, precisely as in Dr. Playfair's case.

The portion of the right appendages which was removed by operation consisted solely of the tube. The uterine end was not dilated. The middle part was distended so as to form a cystic cavity an inch in long diameter, containing a firm, spherical clot. This clot was adherent only at the point where the uterine end of the tube entered the cyst. The walls of the dilated part of the tube were thin.

The infundibulum was distended so as to form another sac which originally contained blood. It communicated, by a circular orifice, with the cystic part of the tube just described.

Probably hæmorrhage first took place in the tube, distending its canal and its ostium. Blood then escaped into the peritoneal cavity, as was proved by the appearances seen at the operation. Three specimens of distended ostium in association with hæmatosalpinx have recently been presented to the Museum of the Royal College of Surgeons and they bore a general resemblance to the present case. The clinical history and peculiar appearances in all four depended on the fact that the ostium was open. In the great majority of instances of distension of the Fallopian tubes by pus or mucus the ostium is closed. Whether closure of the ostium be the rule or the exception in

hæmatosalpinx is uncertain. There is no evidence of tubal gestation.

W. S. Playfair.
Alban Doran.
Walter S. A. Griffith.

COMPLEX TWISTINGS OF THE FUNIS.

By M. Handfield-Jones, M.D.

Dr. M. Handfield-Jones showed two newly-born infants in whom the umbilical cord had been twisted round the fœtal limbs in a curiously complicated manner. In the first case the fœtus was hydrocephalic, and had a well-marked spina bifida; the large size of the head rendered the application of the long forceps and strong traction by its means necessary. When the feet were born a curious condition was revealed, the ankles were crossed one over the other, and each foot closely applied to the lower leg of the opposite side; firm and intricate twistings of the cord lashed the feet and legs tightly and immoveably in this position. The windings of the cord were drawn so closely that the funis was dragged out into a thin, ribbon-like ligature, and it was a matter for surprise how the circulation could possibly have been carried out through such a flattened structure. When loosened the feet were found to be seriously deformed, flattened, and in a position of talipes varus.

In the second case, which occurred in the practice of Mr. Clarke, of Reigate, and which was illustrated by photographs taken by that gentleman, the coilings of the cord were still more remarkable. The case was one of twins, and the first fœtus passed out naturally, then, delay taking place, the hand was introduced into the uterus and came in contact with the abdomen of the second child. It was then found, by passing the hand still further into

the cavity of the uterus, that the arms and legs were fixed behind the back of the infant and retained there by firm twists of the cord which surrounded each limb and then passed off to embrace the arm or leg adjoining. By unwinding the coils from each limb in succession, and then turning, delivery was rendered possible. This child also was hydrocephalic. The frequent co-existence of spina bifida and hydrocephalus was briefly touched upon, and a suggestion made as to obstruction in the funic circulation being concerned in the production of the hydrocephalus.

FALLOPIAN TUBE AND OVARY FROM A CASE OF TUBAL GESTATION.

By Wm. Duncan, M.D.

ANENCEPHALOUS FŒTUS.

By A. Perigal, M.D.

A CASE OF INVERSION OF UTERUS, SIXTEEN MONTHS' STANDING; REPLACEMENT; RECOVERY.

By W. Newman, M.D.Lond., F.R.C.S.Eng.,
SURGEON TO THE STAMFORD INFIRMARY.

A. B—, housewife, aged 23, was admitted into the Stamford Infirmary November 20th, 1888.

Married May, 1886. Confined for first time July 22nd, 1887; was attended by midwife. For some time excessively ill. No clear history could be obtained of her then condition.

Slowly recovered, but ever since has been very weak and unable to attend to her usual housework. Is excessively pale; all tissues anæmic. She has had almost continuous loss of blood, not, however, as a rule to any great extent.

Present uterine condition as follows:—The os is widely dilated with a large globular mass projecting through it, and filling up the vagina. The sound is arrested all round at a depth of about three quarters of an inch from margin of os. Uterus absent, by careful bimanual examination, from its proper position.

On introducing a Sims' speculum, the large vascular prominence is readily seen; it bleeds on the slightest touch. Towards the right lower margin is seen a small depression, probably the orifice of the corresponding Fallopian tube.

November 24th, 10 a.m.—Aveling's repositor was introduced, disc an inch and a quarter in diameter. The instrument was fitted with shoulder straps and waistband of linen, and four india-rubber bands (previously tested to a stretching limit of 2 lbs. with a spring balance) con-

nected these to the stem of the instrument. 9 p.m., temp. 97·2°, pulse 123. No special abdominal pain, some sickness. The disc had slipped slightly to one side; free hæmorrhage since the morning. Hypodermic morphia injections.

25th, 10 a.m.—Disc had again slipped, one margin embedded in the uterine cavity. Replaced. Pressure increased to about 3 lbs. Throughout the day there was a good deal of pain; patient became faint and collapsed. Low temperature, 96·4°. Some free hæmorrhage. 5 p.m., pain and hæmorrhage have continued. Repositor has again slipped to one side; it would seem that the disc is not sufficiently large. The instrument was definitely removed.

27th.—The decided hæmorrhage noted above has now practically ceased. Patient is not now suffering, she takes food better, and is in better general condition.

December 4th.—Hæmorrhage has ceased. It may have been that the attempt at replacement coincided with the periodical return of the menses.

9th.—No hæmorrhage for the past five days; the patient has regained a little colour. 4.30 p.m, the repositor was again employed. A wide belt of soap plaster on moleskin was applied just below the iliac crests to give a firm basis for fixing the instrument. Four rings at proper distances were fastened by loops of tape to this belt, and to these rings, in turn, the elastic bands were also fastened. Pressure 3 lbs. A larger wooden disc, two inches and three quarters in diameter, was used. 9 p.m., the instrument was found to be in good place and just within the lips of the os.

10th, 10 a.m.—Bad night. Instrument removed. The globular projection returns, but is not so large. After hot vaginal injection, the instrument replaced. 4.30 p.m., disc more distinctly buried within the os, and with some difficulty dislodged. The smaller disc, an inch and a quarter in diameter, was substituted. For next hour considerable pain. Pressure employed = 4 lbs. Sickness, but not so much of collapse.

11th, 9.30 a.m.—Disc well buried, together with an inch to an inch and a half of stem. The instrument was finally removed, and this with difficulty. Uterine sound passes three inches. On bimanual examination uterus can be felt above pubes. There has been very little hæmorrhage, but on both occasions on removing the large disc some quantity of blood-stained serum escaped.

12th.—No pain, a little mucous blood-stained discharge.

16th.—No pain, discharge has ceased.

18th. — Hæmorrhage commenced this morning and lasted for twenty-four hours.

29th.—Condition much improved, os uteri patulous. Sound moves freely in cavity of uterus. Mopped out with iodized phenol.

January 6th, 1889.—Has been taking Ferri et Am. Cit.; regained colour, looks well.

12th.—Uterine hæmorrhage for four days, a normal period.

20th.—Vaginal examination shows os uteri rather patulous, torn transversely. Lips readily separated by sound, which passes in three inches. No abrasion. The thickening about the lips of os, noticeable until a month ago by touch and sight, has now quite disappeared. The uterus is freely moveable, normal in position, and painless.

29th.—Went home, perfectly well.

Remarks.—It was unfortunately not possible to obtain any reliable history. Directly after admission, for purposes of cleanliness and as a means of checking loss of blood, hot injections 110°—115° of boracic acid solution (gr. x, ad ℥j) were used morning and evening with the usual douche. They were continued practically throughout the whole of the treatment. The failure in the first attempt at reposition was to be traced probably to two causes:

(*a*) Small size of the disc, an inch and a quarter.

(*b*) Imperfect counter-fixation of the repositor by the shoulder straps and belt.

The difference when the belt of plaster was employed

was very marked. I would suggest that this last expedient is worth adopting in any parallel case.

Dr. William Duncan said that in effecting reduction by means of Aveling's repositor, it was essential to pack round the cup so as to prevent its slipping. He mentioned a case where chronic inversion had existed for nine years, and where he effected reduction with the repositor, the cup had passed into the uterine cavity, and the cervix contracted on the stem, so that a good deal of difficulty was experienced in removing it. He emphasized the necessity for watching a case carefully, so that the cup could be removed as soon as reposition of the inverted uterus had been effected.

Dr. Matthews Duncan said that since the time of Tyler Smith and of West, when the great principle came to be recognised that an inverted uterus should be replaced, not by the old taxis, or any efforts at a single sitting, but by continued pressure, he had found no difficulty of importance in the cases which had come under his care, and they had amounted to about one each year. In Dr. Newman's case the uterus was of extraordinary size, filling the vagina. This he had not seen in a chronic inversion, and it led him to suspect that there was in the uterus a fibroid in some form or other. A great deal was nowadays said about subinvolution of the uterus, and in connection with this subject it should be remembered that a uterus inverted after parturition was rapidly and completely involuted. In chronic cases he had always found it small, completely involuted. He would point out that the modern contraction ring, near as it was to the internal os uteri, was the commencement of difficulty in replacement. He said the contraction ring, because it appeared highly probable that its function in inversion was the same as in or after parturition. There was no great difficulty in replacement arising from the parts below the contraction ring. Difficulty began there. Replacement of the uterine body took place suddenly, and was known to the patient and the nurse by the new pain, and by the slackening of the bands of the repositor. Retention of the disc of the repositor was from contraction of the cervix, and was overcome by prolonged traction without much delay.

Dr. M. Handfield-Jones pointed out that in cases treated by Aveling's repositor, where after reduction of the inversion the disc of the repositor was retained *in utero* by closing down of the cervix, the proper course to pursue was to apply elastic traction to the stem of the instrument, and thus secure its withdrawal by gradual dilatation of the lower uterine zone.

Dr. Barnes said that the merit of initiating the treatment of chronic inversions of the uterus by sustained air-pressure cer-

tainly belonged to Tyler Smith. Dr. Charles West followed. Dr. Barnes drew attention to the strict definition of acute and chronic inversion. The distinction was ruled by the involution of the uterus. This was generally accomplished within a month after delivery. Thus during the month succeeding delivery inversion is acute, and during that period restoration was not usually difficult. After that time the inversion is chronic, and there is greater difficulty in reduction. He (Dr. Barnes) had contrived an elastic pad to a thin repositor to carry out the scheme of sustained elastic pressure. This had answered perfectly in several cases. Dr. Aveling added the perineal curve. In a paper published in the 'Med.-Chir. Trans.' Dr. Barnes related a case in which, to facilitate reduction, he had practised incisions of the constricting neck. It was successful. With further experience he now thought this proceeding would very rarely be required. In the Museum of the College of Surgeons was a Hunterian preparation of an inverted uterus due to a fibroid tumour. In a similar case which occurred to Dr. Barnes he had felt it necessary to amputate the uterus. The case did well. He could not conclude without remarking how far ahead we were in this country of the German practice. In their most recent works, reduction by sustained elastic pressure was barely referred to, but the amputation was carefully dwelt upon. Here this mutilation had been abandoned as unjustifiable.

Dr. Newman, in replying to the preceding speakers, said that he did not think that local packing round the disc of the repositor would have been of much value. Such a procedure had occurred to him, but was dismissed. The smaller disc first used doubtless slipped because it covered such a small portion of the convexity of the inverted organ. He had certainly not detected any embedded fibroid growth. If such were, as time went on, found to declare itself, he would gladly report the fact for later publication. The plan adopted for obtaining fixed points, from which the elastic pressure would act with greater certainty, and the recording of the exact amount of pressure employed, would constitute, perhaps, a sufficient reason for his having brought the case forward.

ON ACUTE NON-SEPTIC PULMONARY DISORDERS AS COMPLICATIONS OF THE PUERPERIUM.

By John Phillips, B.A., M.D.Cantab., M.R.C.P.,
PHYSICIAN TO THE BRITISH LYING-IN HOSPITAL.

(Received January 30th, 1889.)

(*Abstract.*)

The author draws attention to what he considers a special group of cases, which may be denominated "acute non-septic pulmonary disorders," occurring during the lying-in state.

He divides a total of eight cases into two groups, each presenting peculiar characteristics. In Group I are included four cases, one of which was a personal experience. He considers that the three first cases detailed have peculiar physical signs and symptoms, viz. rapid formation of dulness, absence of fine crepitation, and frequent sequence of phlegmasia. The author calls attention to the peculiar course of the temperature and to the occurrence of temporary or permanent valvular cardiac disease.

Group II consists also of four cases, in which the onset of labour appeared to act as a stimulus to a pre-existing pulmonary lesion, rendering a chronic ailment an acute one.

The septic and embolic theories are discussed and negatived.

The probable pathology of these cases is stated.

My purpose in the following contribution is to endeavour to prove that there is a certain natural class of cases existent, which may be conveniently grouped under the denomination of "acute non-septic pulmonary disorders," these being peculiar to the lying-in period.

Under this heading I would propose to include pneu-

monia, pleuro-pneumonia, bronchitis, and pleurisy, occurring under the modified conditions accompanying the lying-in state.

The difficulties which must necessarily be encountered to prove the limits of this class are manifestly great, and I prefer to give the few cases I have been enabled to meet with and then to formulate my reasons for having so done.

The material at my disposal is scanty in the extreme, but the eight cases which I append are all carefully observed, and present many interesting and I think novel features for future observers.

It will be more convenient to divide them into two groups:

Group I.—Consisting of cases in which pneumonia or pleuro-pnemonia has arisen in the course of the puerperium after a perfectly normal labour and in a patient otherwise in good health both ante- and intra-partum (four cases).

Group II.—Consisting of those cases in which pleuro-pneumonia, bronchitis, or pleurisy have arisen during the lying-in, but having had as a predisposing cause some pre-existent chronic pulmonary or vascular trouble (four cases).

It is to Group I that I have paid the greater attention, as it seems to consist of a variety of pneumonia or pleuro-pneumonia, which I might almost say is absolutely peculiar to the lying-in condition.

The first case related under Group I occurred in my own practice, and caused me considerable doubt as to its real nature until I met with Cases II and III in the literature of the subject, which entirely corroborated my own observations.

Group I.

Case I.—A primipara, aged 24, six and a half months pregnant; premature labour was brought on by a long and fatiguing railway journey. Her labour lasted

seven hours, and was normal in every way. While carrying the child she was troubled during the last two months with a great deal of pain in the left thigh along the line of the femoral vein.

The puerperium was passed through without any disturbance except for a few hours on the third day with the incoming of the milk. Her temperature and pulse were normal throughout, and the lochial discharge entirely ceased on the eighth day. She was allowed up on the sofa on the fourteenth day (June 17th, 1887).

19th (sixteenth day of puerperium).—She was suddenly seized with a slight but distinct attack of shivering, accompanied by pain through the right shoulder blade and down the right side; it was worse on taking a deep inspiration. Temp. 101°, pulse 120, resp. 30. There was a slight deficiency of breathing over the lowest two interspaces, but no other physical signs; the uterus was painless and freely mobile, and there was no abdominal tenderness.

20th (xvii).—Dover's powder gr. x gave her a fairly good night, and she felt so well that she got up, but getting out of breath lay down again, and when I saw her I found her with a temperature of 104°, pulse 132, and respirations 32 per minute, but not distressed. Eyes sparkling, cheeks flushed, and a slight hacking cough. There was well-marked dulness over the lowest two right interspaces, with a faint respiratory murmur. The heart-sounds were quite normal.

21st (xviii), 9 a.m.—Dulness has extended up to the angle of the scapula and into the axilla, and is of a peculiar leaden character. Over the whole of the dull area there is loud bronchial breathing and bronchophony, except over the two lowest interspaces, where the breath-sounds still remain feeble, and there is an occasional cackle on deep inspiration. The tongue is loaded and the breath offensive. Urine scanty, containing no albumen but abundant lithates.

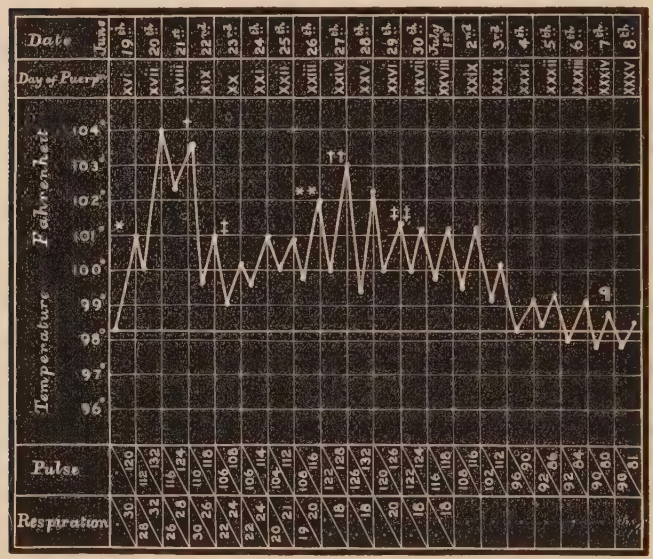
10 p.m.—The dulness has still further increased, chiefly in front up to the level of the right nipple; there is well-

marked vocal fremitus over the dull area; no crepitation. Compensatory exaggerated expiration over left lung.

22nd (xix).—Temperature down to 99·6°. Tongue cleaner; anorexia; slight cough; still gets out of breath on moving. Pulmonary sounds as yesterday.

23rd (xx).—Slight expectoration, and this is viscid and rusty coloured; the breath-sounds are entirely absent over the two lowest interspaces.

CASE I (John Phillips).



* Slight rigor, pain through right shoulder blade.
† Physical signs of pleuro-pneumonia.
‡ Rusty sputum first appeared.
** Pain in right hip and thigh.
†† Apical murmur first detected.
‡‡ Leg slightly swollen.
¶ Slight pain in left leg.

24th (xxi).—Cough much less, expectoration scanty, but still of pneumonic type; an occasional crepitation at the end of deep expiration can be heard over dull area.

The pulmonary condition gradually improved, the dulness diminishing and the expectoration lessening, but there was a marked absence of the "*crepitatio redux*" so

well known in connection with ordinary croupous pneumonia. Heart-sounds perfectly normal; temperature ranging between 100° and 101°.

26th (xxiii), 10 p.m.—Not so well, has a sensation of pain and aching in *right* hip and groin and down the inner surface of the thigh; some tenderness along the sheath of the femoral vessels. Nothing abnormal was discovered by vaginal examination. Her temperature was 102°, but without any corresponding increase in the respirations.

27th (xxiv).—The pain is still severe, and has extended into the popliteal space. No swelling of the leg nor œdema of the foot. The cough has returned, and there is a slight viscid expectoration, but not blood stained. Breath-sounds are distinct over the lowest interspaces. The heart's apex-beat is in its normal situation, but there is a decided soft systolic murmur localised over a small space around the apex.

In the evening the pain was so acute as to require a subcutaneous injection of morphia gr. $\frac{1}{4}$. The temperature rose to 103°.

The pain continued very severe all through the next day, and was exactly like that experienced in the *left* leg (only greatly intensified) during her pregnancy.

29th (xxvi).—Leg slightly swollen especially about thigh and calf; some œdema of instep. The swelling is hard and brawny and not œdematous; the pain is much less, and localised over the femoral and external saphena veins. Tongue clean and moist, and she is able to take plenty of nourishment.

The right leg was wrapped in hot moist fomentations, the flannel being sprinkled with Tinct. Opii.

The apical murmur remains as before, the right leg is quite free from pain. Circumference of thigh an inch above upper border of patella fourteen and a half inches.

July 1st (xxviii).—Catamenia appeared; normal in quantity and character. The pain in right leg has entirely ceased. Circumference of thigh has increased to seventeen

and a half inches; swelling has a less brawny sensation.

July 7th (xxxiv).—Some pain for three or four hours in the left leg, but there is no tenderness along femoral sheath; slight œdema of instep. The circumference of right thigh has diminished to fourteen and three quarter inches. The heart-sounds are to-day quite normal, no trace of the apical murmur being detected.

Convalescence was rapid and normal from this time, and in August I could not trace any remains of the pulmonary trouble.

I have given this case somewhat in detail and from copious notes taken at the time. The others being published elsewhere in full, I have condensed them, drawing attention, however, to the more salient points in their course.

Case II (Macdonald).*—The patient, aged 26, a 2-para, was confined after a rapid labour on the evening of September 10th, 1876. She did well until the evening of the 15th, when she had a distinct rigor, the temperature rising to 103°; she slept well, however, and felt better in the morning. On September 17th, or the seventh day of the puerperium, she began to suffer pain on the right side just below the nipple. Pleurisy, with pneumonia of the right lower lobe, was made out. The dulness increased rapidly and ceased progressing when on a level with the superior angle of the scapula; the left base became slightly affected on the ninth day. Recovery took place by crisis on the twelfth day of the puerperium. On the fourteenth day a distinct soft systolic murmur was heard at both apex and base which continued for six weeks. On the eighteenth day she complained of pain and stiffness in the *left* leg and groin, accompanied by a considerable rise in temperature, which resulted in well-marked phlegmasia four days later. On the twenty-eighth day of the puer-

* 'Obstetrical Journal,' 1877-8, vol. v, p. 388, and 'Heart Disease during Pregnancy,' &c.

perium the *right* groin became very painful, which was followed by some tenderness along the femoral vein, the

Case II (Macdonald).

Day of Puerp.
vii viii ix x xi xii xiii xiv xv xvi xvii xviii xix xx xxi xxii xxiii xxiv xxv xxvi
Temperature Fahrenheit
104° 103° 102° 101° 100° 99° 98° 97° 96°
Pulse
110 110 110 100 92 96 96 90 84
Respiration
40 40 40 36 33 30 28 30 34

* Pain in right side. ‡ Milk returning: systolic murmur. ** Stiffness in left leg.
† Red sputum. †† Left leg much swollen.

temperature rising to $102\frac{3}{5}^{\circ}$; no brawny swelling appeared. The patient made a good recovery.

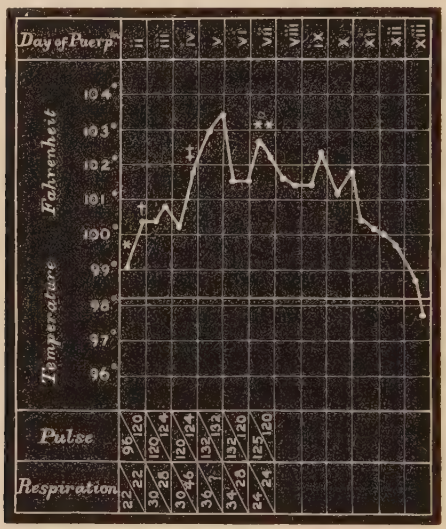
Case III (Macdonald).*—A 2-para, aged 36, was delivered by forceps December 3rd, 1876, the head presenting. On the evening of the next day the patient felt a stitch below the border of the false ribs, on the left side posteriorly; on the morning of the second day of the puerperium, the pain was the same, while slight dulness at the extreme left base with friction sounds were discovered. No rigor had been noticed. The friction-sounds increased considerably during the next twenty-four hours. On the fourth day of the puerperium, pneumonia was evidently

* Ibid., p. 392, *et seq.*

present with expectoration of a few mouthfuls of bloody sputum.

The next day the right base became affected with pneumonia, the temperature rising to 103·4°, the pulse to 132. There was a slight suspicion of tenderness over the uterus, but the lochia were normal in every way.

Case III (Macdonald).



* Pain in left side behind.
† Well-marked friction.
‡ Bloody sputum.
** Basic cardiac murmur.

A distinct basic cardiac murmur (endocardial), harsh and grating in character, was heard on the seventh day, which remained audible for a month after, though it became softer. The patient gradually and uninterruptedly improved from this time, no phlegmasia developing.

Case IV (Leopold).*—The patient a 6-para, aged 40, was confined of her sixth child, delivery being normal in every way. On the third day after delivery she had a

* 'Centralblatt für Gynäk.,' 1885, Bd. iv, S. 393, "Sitzungsbericht der gynäkolog. Gesell. zu Dresden."

rigor, the temperature rising to 103·1° Fahr., with a quickened pulse. Some abatement of both these occurred the next day, but the signs of acute croupous pneumonia of the right inferior lobe manifested themselves, the temperature again rising, and the respirations reaching 46 per minute. The pneumonia spread rapidly towards the apex on the right side, while on the sixth day the left base became affected. The temperature descended by crisis on the eleventh day and recovery was rapid; no phlegmasia.

It will be seen at a glance that Cases I, II, and III present many features remarkably in common, and I must here add three other very similar ones, of which I could only obtain meagre particulars. They are mentioned by Dr. Playfair,* and are considered by him as "cases of pleuro-pneumonia occurring in connection with the puerperal state, but not distinctly associated with septicæmia." Of these three one died, while two of them were complicated by phlegmasia dolens.

Dr. Paul Mundé† in 1875 said that in none of the books or periodicals at his disposal had he been able to find any mention of "puerperal pneumonia" occurring primarily and idiopathically during the puerperal state. He saw a case of double pneumonia in a puerpera coming on during the fifth day, and going on to resolution and recovery without any outward symptoms, and without differing in the least from the disease as seen in non-puerperal women or men. Scanzoni, who saw the case, took a gloomy view of it, but no reason was given. Case IV may have been like this; no accurate physical signs are given in the description, and it may be an instance of pneumonia coming and going without in any way being influenced by the condition of the woman. This is of course merely conjecture, and I have for many reasons included it in Group I.

* 'Science and Practice of Midwifery,' 7th edition, vol. ii, p. 389.

† 'American Journ. Obstet.,' 1875-6, vol. viii, p. 565.

The first objection I must naturally meet will be this: How is the question of septicæmia to be eliminated from the above cases?

In Case I the mischief commenced on the sixteenth day of the lying-in, pulse and temperature up to that time being absolutely normal. All discharge had ceased at least a week, and it would naturally be inferred that all the uterine venous sinuses would be absolutely aud hermetically sealed. In Playfair's cases it arose on the fifteenth, twenty-eighth, and thirty-fifth days of the puerperium respectively. Experience shows that septicæmia does not commence so late as this, as a rule, in the puerperium; nor so early as the second day as in Case II. Cases III and IV, commencing on the fourth day, and Mundé's on the fifth, are of course open to objection. There were no general symptoms preceding the local ones, as is usual if there is septic poisoning; the attack in each case began by pain over a well-defined situation, and was evidently pleuritic and preceding the onset of the pneumonia. Except in Case III the attack was ushered in by the usual slight rigor or feeling of chilliness, but no repetition of this phenomenon occurred, as is nearly always the case in septic pneumonia. On examining the temperature charts it will be seen that the initial rise was fairly rapid and was in each case accounted for by the lung complication, while after consolidation had taken place a rapid fall by crisis took place; these are not generally recognised as signs of septicæmia.

In my own case every antiseptic precaution was taken by myself and the patient's nurse, and the same is indicated as having been carried out by Macdonald in his cases.

On comparing an undoubted septic case of pneumonia with one of the above, the difference is at once evident. Garel's* case is an instance, where the patient was attacked by parametritis, pneumonia, and finally suppuration about the sacrum and left internal ear.

* 'Lyon Médical,' 1884, vol. xlvi, p. 480, with temperature chart.

The second objection will be that all the peculiar symptoms detailed in Cases I, II, and III could be accounted for by supposing the existence of multiple emboli in the minute pulmonary arterioles.

For the moment I propose to delay answering this objection until I have entered more fully into the peculiarities attendant on these cases, especially I, II, and III. Enumerating them briefly, they appear to be:

(1) The commencing pleurisy with pain over a localised spot.

(2) The rapid formation of dulness, this dulness being of a peculiar leaden character.

(3) Absence of fine crepitation, both at the onset of the pneumonia and during the resolution stage, nothing but a few coarse râles being heard. This rather points to the idea that the pulmonary air-cells are not filled with fibrinous exudative material as in true croupous pneumonia.

(4) The entire absence of any history of sudden dyspnœa. True, a certain amount of breathlessness was noticed, but it developed gradually, and was easily accounted for by the physical signs present.

(5) The left-sided endocardial murmur, in two cases heard at the mitral orifice and in the other over the aortic opening. In my case the murmur seemed functional, similar in character to those heard so often in choreic cases, and which are evidently due to irregular contractions of the papilliform muscles. I shall, on the other hand, however, presently relate two cases by Andrew and Simpson, in the latter of which a post-mortem was obtained, and showed distinct warty vegetations on the mitral valve of recent origin. In Macdonald's two cases the murmurs lasted a considerable time, and in his first case the physical signs certainly pointed to permanent mitral valvular lesion.

(6) The entire absence of metritis and parametritis. No disease of the right side of the heart was discovered, and no pre-existing phlegmasia was found.

(7) A peculiar red-currant-jelly sputum was expec-

torated in large quantities in Case II, less in Case III, while in my own case it was of a well-marked rusty-red colour, very viscid, but scanty.

(8) The occurrence of phlegmasia dolens of the leg at a distinct interval after the onset of the pneumonia; in my case on the twenty-sixth day after labour, and on the eighteenth in Macdonald's.

Many observations show that the natural sequence of phlegmasia dolens may often be pulmonary infarction and its sequelæ, pneumonia and pleurisy, sooner or later. Begbie,* however, was the first to call attention to their near relationship. He found also that some cases of pleurisy were followed by swelling (quite indistinguishable from puerperal phlegmasia) of the leg on the corresponding side. Other observers have since confirmed this view, and it may be therefore fairly permissible to conclude that there may be some intimate connection (although its nature is at present undecided) between pleurisy and phlegmasia, quite exclusive of any septic process. Dr. Matthews Duncan tells me he has met two cases of undoubted simple pleurisy occurring in the puerpera, which ran a normal course and made easy recoveries. He has also given me two instances, where the pleurisy was complicated by perimetritis, but I feel bound to look on cases such as these latter with suspicion, and have therefore excluded them. Hanot and Mathieu† relate a very interesting case of chlorosis, which was complicated by phlegmasia dolens of the leg in a nulliparous patient. The blood was examined, and presented many of the features of that found in the pregnant condition, which supported the theory of Trousseau, "that in cachexias such as chlorosis, there is a special condition of the blood which favours coagulation in the veins, apart from all question of inflammation." Willcocks‡ has shown that a more or less considerable diminution of hæmoglobin in a given volume of blood exists in both

* 'Edinburgh Med. Journal,' 1886, vol. ix, p. 1095.

† 'Archives Générales de Médecine,' 1877, vol. ii, p. 676.

‡ 'Lancet,' Dec. 3rd, 1881, "The Blood of Chlorosis and Pregnancy."

pregnancy and chlorosis, especially in the latter, the blood-state in healthy pregnancy being due to a large relative increase in the water of the plasma, owing to the progressive enlargement of the vascular area during pregnancy. This condition must continue for some time after labour has taken place, and it is evident that phlegmasia dolens may occur entirely apart from any question of septicæmia. I am fully aware I am stating here what is opposed to general teaching, viz. that phlegmasia in the lying-in woman is almost certainly septic. Indeed, Dr. Tyler Smith* looks upon a woman attacked with it as having made "a fortunate escape from the greater dangers of diffuse phlebitis or puerperal fever."

There appear to be three theories to account for the occurrence of pleuro-pneumonia in the puerperium:—

1. Exudation of fibrinous material into the pulmonary air-cells, as in true croupous pneumonia. This was evidently the case in Leopold's patient (Case IV), and probably in Mundé's, in other words the attack was one of ordinary acute lobar pneumonia running a natural course, as it would have done in the non-puerpera.

This theory does not account for the absence of fine crepitation at the onset and termination of the disease. I think that with the form of pleuro-pneumonia under consideration the air-cells are not *directly* implicated.

2. That minute non-septic emboli pass along the pulmonary arterioles, and so produce minute infarctions.

This would account for the rapid formation of dulness, the absence of crepitation, and the currant-jelly sputum. But on the other hand, in the cases given there was no disease on the right side of the heart, and certainly none pointing to the presence of vegetations on the tricuspid or pulmonary valves. In addition there was no pre-existing phlegmasia. Had this been so, I think that there would have been no doubt as to the correctness of this theory. It must be also borne in mind that the possibility of minute emboli being *non-septic* is somewhat problematical.

* 'Manual of Obstetrics,' p. 538.

3. The theory which, to my mind, seems to entirely accord with the pulmonary state at present under consideration, is that there is a general thrombosis of the minute pulmonary venules, produced by the same condition of the blood which is productive of phlegmasia dolens later on. Large numbers of these vessels would become plugged, pulmonary œdema and blocking of the lymphatics would ensue, and a condition exactly similar to that in phlegmasia result.

The air-cells, instead of being filled with fibrinous material, would be pressed upon, and, as a result, would collapse and thus account for the absence of the fine crepitation, which is so noticeable a feature in this group of cases.

The presence of this exudation around the air-cells would set up a certain amount of inflammation of the mucous membrane lining them and a few coarse râles, produced in those which remained slightly patent, would from time to time be the consequence.

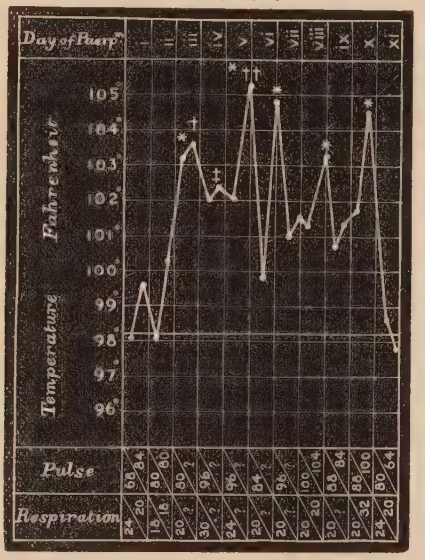
I will now pass on to Group II, which consists of four cases, and although these do not present such marked features as those in Group I, still they give additional support to the theory I have brought forward.

Case V (Negri).*—A 3-para, aged 31, was admitted December 30th, 1884. Her two previous labours had been quite normal. She lived in a marshy district. When first seen the splenic area was much increased in every direction, but chiefly vertically. Three weeks after admission she was confined of a living child, her labour being perfectly normal. Immediately before and after parturition the temperature, pulse, and respiration were normal. The temperature the same evening rose to 99·8°, the pulse to 84, but the respirations remained normal. The next day (second of puerperium) the temperature rose rapidly after a short rigor and reached 103·2° on the third day; there was a slight cough. The uterus and lochia normal. Liver enlarged, and the spleen so much increased in size as to

* 'Annali di Ostet. Ginecol. e Ped.,' Milano, 1885, vol. vii, p. 117.

reach to the left iliac fossa. On the fourth day there was pain at the right pulmonary base behind, shivering sensation all day, with dry tongue; respirations quickened to 30. The pain and cough continued on the fifth day, and

Case V (Negri).



* Short rigor. ‡ Pain right base behind.
† Spleen much enlarged. †† Rusty sputum.

a short rigor occurred in the evening; two lumps of rusty sputum coughed up (sputo cruceo). The next day the cough was incessant but the pain less pronounced; there was distant crepitation at the right base behind.

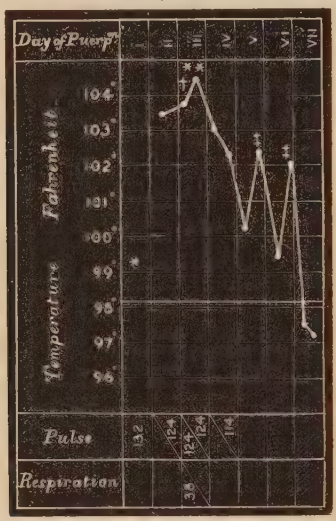
The temperature descended by crisis on the eleventh day. No phlegmasia.

Case VI (Andrew).*—A 7-para, aged 39. After the birth of the sixth child she had a sharp attack of bronchitis commencing on the second day after labour; she was ill five weeks. She was confined again November 4th, 1879, having, as she thinks, caught a chill the day before, being

* 'Obstetrical Journal,' 1880, vol. viii, p. 21.

otherwise quite well. There was no sign of any pulmonary mischief at her labour, but twenty-four hours afterwards slight cough with pain in the right hypochondrium appeared; the abdominal signs were all normal. At the beginning of the third day of the puerperium, slightly

CASE VI (Andrew).



* Pain right side, cough. ‡ Delirious. † Slight rusty sputa.
** Well-marked signs of bronchitis (double) and pneumonia (right side). Loud systolic apical murmur.

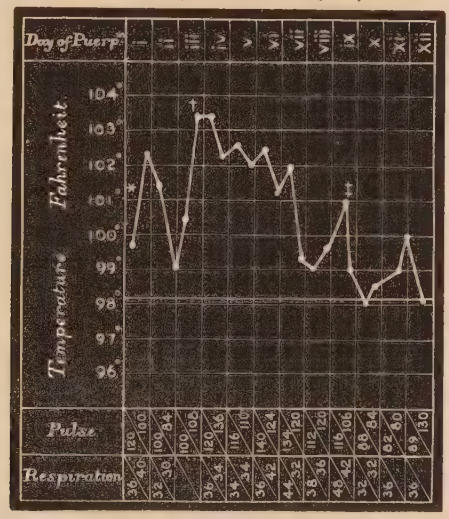
rusty sputa were expelled, but no physical signs of pneumonia or pleurisy could be detected. In the afternoon of the same day well-marked double bronchitis and right-sided pneumonia was made out. In addition, a loud mitral systolic murmur. The consolidation increased up to the tenth day; then a crisis occurred. The cardiac murmur was heard for a month, but gradually declining in distinctness.

CASE VII (Alexander Simpson).*—A 2-para, aged 30, was attacked with acute bronchitis a week previous to admis-

* 'Edinburgh Med. Journal,' 1881-2, p. 1000, and private communication.

sion. Seven hours after a normal labour the patient was flushed and restless, with pain over the base of the left lung, especially on taking a deep breath. She had all the signs of pneumonia of the left side for eight days, when prostration rapidly set in; four days later she had repeated rigors, and gradually sank.

Case VII (Alexander Simpson).



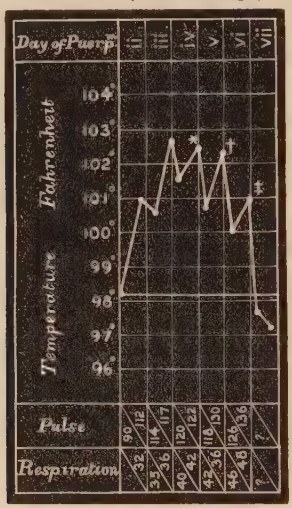
* Pain over base of left lung. † Pneumonia well developed.
‡ Sudden prostration.

A post-mortem showed the left lung adherent to its pleura at the base. The lower lobe of the left lung was solid from croupous pneumonia in the red hepatisation stage; the upper lobe congested, but not pneumonic. The left kidney contained a large recent infarction, a large branch of the renal artery being occluded by a decolorised tenacious thrombus. Attached to the posterior cusp of the mitral valve on its inner aspect was a large bunch of recent vegetations. The spleen contained three infarctions. A piece of placenta two inches long found adherent to the uterine mucous membrane.

The lochia were normal all through, the placenta being expelled naturally and with no hæmorrhage.

Case VIII.—Occurred in the out-patient maternity of the British Lying-in Hospital. It may be summarised very shortly. The patient, a 6-para, aged 34 and very stout, was first seen December 1st, 1882. She had for six or seven years always suffered from a winter cough,

Case VIII (John Phillips).



* Leeches below scapula. † Great dyspnœa and cyanosis.
‡ Collapse.

and had one as usual this year. She had a normal confinement, if anything being after her time, and was attended by a midwife, who reported all well until the evening of the second day. She then found the patient with a quick pulse and rather laboured respiration. I saw her the same evening and found no well-marked physical signs. The next day, however, double bronchitis was evident, with patches of broncho-pneumonia over the base of the left lung. On the evening of the fourth day I found her rather blue about the lips and

fingers. I therefore applied two leeches at the angle of each scapula. The cyanosis increased, however, in spite of all treatment, and she died after a rapid collapse on the seventh day. The lochia were normal throughout, and there was at no time any uterine tenderness. The patient had been quite well up to the time of her confinement, and no rigor ushered in the illness.

Here there are four cases in which there could be no doubt that the labour was the exciting cause of the trouble ; enlarged spleen followed by pneumonia in Case V, and acute broncho-pneumonia being the sequence of chronic bronchitis in Cases VI, VII, and VIII.

Case V is particularly interesting as the temperature evidently shows that the labour started a temporary quotidian ague, producing a rigor and rise of temperature at night, in addition to the pneumonia, which seemed rather of the croupous variety, as in Case IV. A certain condition allied to chlorosis must have existed in the patient, as indicated by the behaviour of the spleen, and have acted as a predisposing cause to the pneumonia.

In Cases VI, VII, and VIII I think all idea of septic mischief may be put aside, and the question arises whether, if any surgical operation had been performed on either of these women, a similar complication would not have arisen.

There was an entire absence of all the peculiar physical signs so marked in Cases I, II, and III, and phlegmasia did not follow in any of them. There is no history of cold or exposure, and I think the predisposing cause must be limited to the already existing bronchitis. A loud mitral murmur developed in the case related by Andrew, which gradually disappeared as in Cases I and III. Death in Simpson's case seemed to be due to the kidney and splenic infarction, and although placental remains were found after death Dr. Simpson thinks that the disease began too soon after the labour for anything septic to have arisen. Broncho-pneumonia is regarded

by Barnes* as a symptom of or part of puerperal fever. He thinks that in many cases the fever is masked, or is so slight that it escapes observation, the attention of the observer being fixed upon the pulmonary symptoms alone. All the patients were doubtless at full term, and I have especially avoided mention of those cases in which the onset of labour was precipitated by the lung mischief as they come under the subject of "pneumonia during pregnancy," which has already been thoroughly elucidated by Fasbender, Wernich, Gusserow, and Coli.

The question of treatment does not seem to call for special comment. In my first case I gave carbonate and spirits of ammonia, and added digitalis as the pulse increased in rapidity, but I cannot say that their administration appeared to have any beneficial effect upon the course of the disease. The phlegmasia was treated locally in order to relieve pain and tension. Although the cases given are so few I think the following conclusions may be drawn:

(*a*) That there is a form of non-septic pleuro-pneumonia peculiar to the puerperium which can be recognised by certain physical signs and symptoms, these being, rapid formation of dulness, absence of fine crepitation, and frequent sequence of phlegmasia dolens of the extremities. In addition there is a rapid initial rise of temperature, then temporary irregularity followed by a more or less rapid crisis; should phlegmasia occur there is gradual rise for some days before the actual swelling appears. The heart is affected temporarily or permanently as indicated by the occurrence of valvular murmurs.

(β) That there is a form of pneumonia which follows the exact course of ordinary croupous pneumonia, and is probably that disease, but coincident with the lying-in, at the same time neither affecting nor being affected by the puerperal condition. The same holds good with

* "Broncho-pneumonia of Lying-in Women," 'Obstet. Trans.,' 1863, vol. iv, p. 55.

simple pleurisy; facts, however, do not point to any special physical signs with regard to this condition.

(γ) That any previous chronic pulmonary or vascular disorder is very likely to be excited into an acute one by the advent of labour, producing acute bronchitis and broncho-pneumonia, and in some cases with serious results. Cases of this kind are rare, and the reasons for their occurrence are at present not elucidated.

(δ) That the pathology of those cases peculiar to the lying-in condition is probably a thrombosis of a more or less extensive character in the small pulmonary veins, which is followed by œdema and blocking of the lymphatics, and that this is due to the same blood condition which is observed in cases of phlegmasia dolens of the extremities.

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Dr. Herman said that the great trouble Dr. Phillips had taken in bringing together all the literature relating to his subject made his paper one which would always be valuable for the purpose of reference. Although he highly appreciated not only Dr. Phillips's labour, but also his thoughtfulness and ingenuity in argument, yet he regretted to say that he was unable to follow Dr. Phillips in the main conclusion which it was the object of the paper to establish. He had had under his own care in the

General Lying-in Hospital one case of pneumouia during the lying-in period. That case did not present any features that he was able to distinguish from pneumonia as it occurs in non-puerperal women or in men. It ended in recovery. He might mention in passing that it illustrated a point which had been mentioned in former discussions of the Society, viz. that after the pyrexia had lasted a day or two the lochia became fœtid. There was no fœtor before the pyrexia, and antiseptic douches were used throughout. He had also recently had under his care in the same hospital a case of severe bronchitis, with emphysema and cardiac dilatation, present at the time of delivery. There was no evidence of valvular disease, the cardiac dilatation seeming to be due to the condition of the lungs. In that case there was no fever, and the patient's condition steadily improved throughout the lying-in. The course of the illness did not present any peculiarity that could be thought due to the patient's having been delivered of a child. Dr. Phillips had dwelt upon certain peculiarities in his cases, which he considered to warrant the belief that their pathology was distinct and different from that of ordinary pneumonia. He (Dr. Herman) was unable to attach the same importance to these as did Dr. Phillips. The time during which fine crepitation lasted in pneumonia was variable, and was sometimes short, and if the crepitation were not heard, it did not follow that it had never been present, but only that it was not present at the time the chest was auscultated. The "peculiar leaden character of the dulness" was a sign that could only be detected by a most accomplished ear, and he thought that, if characteristic, it was too difficult of recognition to be of practical use. He did not think the number of cases was large enough to make the coincidence of some of them with phlegmasia an argument of weight. Nor, in view of the great frequency of cardiac murmurs in the puerperal state (as had been shown by Dr. Money in a paper read before the Royal Medical and Chirurgical Society) did he attach much importance to the presence of such murmurs in Dr. Phillips's cases. He did not think that the features on which he had commented were sufficient to warrant the conclusion that the pneumonia in Dr. Phillips's cases was something different from pneumonia as it occurs in non-puerperal women and in men. In one subordinate point he was happy to find himself in accord with Dr. Phillips. He thought, and he gathered that Dr. Phillips did so too, that in some literature of the day it was too often assumed that any illness occurring in a patient who had been exposed to the chance of septic infection was septic in character. It seemed to him that the tendency of recent research was towards showing that septicæmia, or septic infection, was a disease with a course and phenomena as definite as those of any other infectious dis-

order, and he thought that unless a morbid condition were preceded by the manifestations of general septicæmia or pyæmia, it should not be spoken of as septic. He saw no ground for supposing that Dr. Phillips's cases were septic, nor did he think that phlegmasia dolens of the ordinary kind was of septic origin. Phlegmasia dolens occurred most often in women who had been exposed to septic infection, and therefore sometimes coincided with septicæmia or pyæmia; but these were complicated and exceptional cases,—the ordinary form had nothing to do with septicæmia.

Dr. Barnes said in his paper in the 'Obstetrical Transactions' referred to by Dr. Phillips he had expressly described a form of broncho-pneumonia as a phase of puerperal fever, distinct from the form described by Virchow as due to minute emboli carried to the lungs. He fully accepted Virchow's description as of great importance in explaining some cases of broncho-pneumonia, but it did not explain all. Dr. Barnes's paper was a brief supplement to a more elaborate memoir on thrombosis. He demurred to the proposition that thrombosis occurred independently of septic influence. But in making this statement a distinction must be drawn. In every case there was present some noxious element, not necessarily septic in the sense so much dwelt upon of late, implying the absorption of septic matter from the genital canal, or introduced from without. There was another source of noxious matter, which arises in the patient's own system from repressed excretion. During involution an enormous quantity of effete matter was rapidly thrown into the circulation, and if it were not as rapidly discharged by excretion pyæmia and fever resulted. And in this way thrombosis, as well as broncho-pneumonia, might result. Two factors were required to produce thrombosis: the puerperal blood highly charged with fibrin, and noxious stuff to cause coagulation. This was found either in sepsis or in the retained matter that should be excreted. As for "spontaneous" thrombosis, there could be no such thing,—as well might we talk of effect without cause. Spontaneous pathology did not exist. Dr. Barnes had noted that in most of the cases related by Dr. Phillips the broncho-pneumonia broke out in the winter or under the noted influences of cold. Dr. Barnes had shown that by far the largest number of cases of puerperal fever occurred in the winter, and under the influence of cold and damp. In this respect Dr. Phillips's cases confirmed the conclusion that arrest of excretion was an important factor in puerperal fever. He thought the fact stated by Dr. Phillips, that in one case the symptoms did not appear until the sixteenth day, strongly supported his conclusion that they were not due to septic infection. Dr. Barnes submitted that the meteorological relations of puerperal disease were too much neglected. He

proposed that a column should be added to the tables kept for registering the temperature and other conditions of the patient, in which should be noted the course of the meteorological phenomena out of doors and indoors. As illustrating the influence of cold, Dr. Barnes drew attention to a recent most interesting memoir by Dr. Bristowe in which it was shown by direct experiment that exposure to cold almost immediately caused hæmoglobinuria. He could not conclude without expressing his sense of the value of Dr. Phillips's paper. It would certainly help to arrive at more accurate ideas as to puerperal diseases.

Dr. Leith Napier said his desire to be brief must excuse seeming dogmatism. He held that a puerpera might suffer from any true acute inflammation without the occurrence of septicæmia. Peritonitis might undoubtedly happen during puerpery without septic complication, and this being so, why not pneumonia also? Acute non-septic pneumonia was rare; he could only recall one case, which occurred in 1881. The patient was rheumatic, and had a very distinct mitral regurgitant murmur. She had a rigor followed by hyperpyrexia of sudden development. On the fifteenth day of the puerperium she recovered. Dr. Phillips, in Case I, gave a notably well-recorded example of the condition, but Dr. Napier thought that the subsequent onset of phlegmasias suggested septicity. The cases quoted from Angus Macdonald were published at the end of his work on 'Cardiac Disease in Pregnancy,' and it was worthy of remark that these lung affections might be, in some degree, related to pre-existing valvular disease. The second class of cases mentioned in the paper was much more common. Within the last ten days he had seen in consultation a case of acute bronchitic asthma, with complete blocking of one side of the chest; this illness came on during the fifth day of the puerperium. There was neither septic nor peritoneal complication. Before pregnancy the patient had been, at times, liable to such attacks. On the present occasion the heart's action was very weak and irregular, and the gravest apprehensions were entertained. After a sharp non-septic illness she recovered. He appreciated Dr. Phillips's excellent paper very highly; the one word of criticism he would venture to pass was that it seemed to attempt to prove too much.

Dr. Matthews Duncan, recognising the value of Dr. Phillips's paper, had expected that he would describe and illustrate the pneumonia and pleurisy of lying-in women, simple inflammations, which he believed occurred in this connection as in pregnancy. He had seen such simple inflammations, and they were etiologically unaccounted for. The cases of Dr. Phillips were, in his opinion, mostly illustrations of a well-known, but imperfectly understood disease in which pleurisy or pleuro-pneumonia or pneumonia occurred with swelled leg of the same side. The combination

was almost enough to show that such were not simple inflammations, but were to be classed with the swelled leg of fever, a disease which had been described by Christison and Begbie. He (Dr. Matthews Duncan) often found in puerperal fever inflammatory œdema of the lung without the usual signs and symptoms of pneumonia. And he regarded this as resembling the inflammatory œdema, sometimes found, in such cases, in the limbs or trunk, forming tender masses, often of great size, which did not suppurate.

Dr. Gibbons remarked that although these cases were classified as non-septic, he did not gather from the paper that the ordinary etiology of pneumonia had been eliminated. He presumed that this was because they were considered to belong to a special group, but he stated that he had had under his care three cases of pulmonary trouble during the lying-in period, having undoubtedly the ordinary cause for their origin. Two of these were pleuro-pneumonia, and occurred towards the end of the second week after delivery. It was beyond doubt that they could be distinctly attributed to cold, and were not septic. In the third case the evidence was also clear that the pneumonia was due to prolonged chill; it began on the same day as the commencement of labour. In the cases brought forward by Dr. Phillips, the first two were accompanied by phlegmasia dolens. Dr. Gibbons believed that the vast majority of those who had experience of this latter disease believed it to be of septic origin. Of the other cases detailed, the symptoms in all began within the first few days. It was well known that the most serious trouble in the puerperal state frequently arose during the first few days. He considered, therefore, whilst agreeing that the paper was a most valuable contribution, that, with the evidence before the Society on this subject, they were not warranted in agreeing with the conclusions of Dr. Phillips that his cases were non-septic.

Dr. Boxall remarked that the pulmonary disorders referred to by Dr. Phillips as complications of the puerperium were undoubtedly rare, so much so, indeed, that it was difficult at present to offer a complete criticism on the propositions which he had laid down. Dr. Phillips had, however, done well to direct special attention to such cases, and it was to be hoped that his paper would set on foot the collection of further material. Among the 356 cases of pneumonia in the female sex included in the 'Collective Investigation Record,' vol. ii, 1884, mention is made of seventeen in connection with pregnancy, puerpery, and lactation. In ten cases pneumonia supervened during pregnancy, in one four days after miscarriage, and in six after delivery. Though in none of the cases are the reports given with sufficient detail to eliminate the septic element, the period after delivery

at which the attack of pneumonia supervened may be of interest. The following dates are given :—"two days after confinement," "fourteen days after labour," "had been confined five weeks," and in the remaining three less definite terms are employed: "weak from lactation," "suckling an ailing baby," "came on in an otherwise normal puerperium." In the second of these cases mention is made of phlebitis of the left leg on the tenth, and of the right leg on the thirteenth day of the fever. In gauging the association of phlegmasia dolens with pneumonia during puerpery, the occasional occurrence of a similar complication when the disease is met with under ordinary circumstances, should not be lost sight of. In the report above referred to an instance is given of "phlegmasia dolens of the left leg" in a male subject; and in women "lymphangitis of the right calf" and "œdema of both legs from thrombosis, lasting one month," are recorded as sequelæ to pneumonia. Moreover, the occurrence in other cases of "muscular rheumatism of calf" and "rheumatic pains" suggest the possibility of thrombosis of deep-seated vessels. Such cases are interesting, for, given the conditions necessary for thrombosis, extension of the plugging so far as to implicate the main trunks of the limb may be reckoned a mere fortuitous circumstance.

Dr. JOHN PHILLIPS said that in his paper he had endeavoured to prove the possibility of pneumonia, even if complicated by phlegmasia dolens in the lying-in woman, being not always of a septic nature, and he thought that some of those present had certainly corroborated his theory. It was naturally impossible with so few cases at his disposal to lay down any opinion dogmatically, but by calling attention to the subject something might result towards dissipating the too generally accepted idea that all this class of cases were of a septic nature.

JUNE 5TH, 1889.

ALFRED L. GALABIN, M.D., President, in the Chair.

Present—44 Fellows and 4 Visitors.

Books were presented by Dr. Budin, Dr. Playfair, the Council of University College, the Editor of the Glasgow Medical Journal, and the American Association of Obstetricians and Gynecologists.

Charles Henry Whitcombe, F.R.C.S.Ed. (Westerham), was admitted a Fellow of the Society.

Matthew Benson, M.D.Brux. (Wigan); Edward Octavius Croft, L.R.C.P.Lond. (Leeds); Jehángir J. Cursetji, M.D.Brux. (Bombay); and David Thomson Playfair, M.D., C.M.Edin. (Bromley, Kent) were declared admitted.

The following gentlemen were proposed for election:—Francis Robert Bryant Bisshopp, M.A., M.B., B.S.Cantab. (Tunbridge Wells); Alfred Brown, M.A., M.B., C.M. Aber. (Manchester); Frederick Henry Davies, M.B., C.M.Edin. (Tilbury); and William Harry Christopher Newnham, M.A., M.B.Cantab. (Bristol).

RUPTURED FALLOPIAN TUBE.

By Dr. Craig.

Mr. Knowsley Thornton showed for Dr. Craig, of Beckenham, a ruptured Fallopian tube (? tubal pregnancy). A married woman, aged 38, mother of one child six years of age, believed herself to be six weeks pregnant. When standing in the kitchen she was seized with sudden pain in her lower abdomen with faintness and collapse. In spite of stimulation she died in sixteen hours. The abdomen was found to contain two pints of blood, and the pelvis was also full of clot. No fœtus could be found, but the right tube close to its entrance to the uterus contained a small round hole with thinned edges, and this was evidently the seat of the hæmorrhage. The tube was thickened to about the size of a small hazel nut. Mr. Thornton presented it to the Society just as received, so that the small size of the hole and its thin edges might be seen by the Fellows. He remarked on the situation of the opening so near the uterus that the complete removal of the tube and ovary would have been somewhat difficult, especially in unusually soft and hyperæmic tissue, and he suggested that in such cases the mere passage of a couple of fine silk sutures so as to stop the hæmorrhage without removing anything would be a better operation than removal of the ovary and tube,—it would be quicker and altogether less serious for a woman already in a state of collapse from excessive loss of blood.

In answer to a question from the President he expressed the great difficulty he had in deciding in his own mind whether these cases should be at once operated upon in view of the numerous undoubted recoveries without interference. On the whole he was inclined to advocate an immediate operation ; he did not fear operating during collapse, but on the contrary would expect the collapse to

cease directly the flow of blood was stopped, and he instanced a case in which this actually happened in hæmorrhage from slipping of ligature on an ovarian pedicle.

Dr. Amand Routh alluded to the importance of diagnosing whether the hæmorrhage was intra-peritoneal or into the meshes of the broad-ligament connective tissue. In the former case immediate operation was required as soon as rupture had occurred. He mentioned a case of tubal gestation which ruptured at the twelfth week, and was admitted under Mr. Bloxam at Charing Cross Hospital. Here vaginal examination showed the uterus to be pushed over to the right by a large hard mass in the left broad-ligament region, and the pouch of Douglas was found to be empty. It was decided not to interfere, as the hæmorrhage was clearly localised and encysted, and the woman made a perfect recovery.

Dr. Matthews Duncan had not seen a case of intra-uterine gestation rupture into the broad ligament. Such a hæmatoma as would be thus produced would be easily diagnosed. No doubt such cases occurred. He had been so impressed by the recent successes of laparotomy in rupture of extra-uterine pregnancy in an early stage that he was now easily moved to favour the proceeding. But it was not to be forgotten that the large majority, probably the very large majority, of such peritoneal ruptures with bleeding and collapse did well. Recently he had had at least half a dozen such cases, diagnosed by several eminent medical men, where recovery took place without operation or any interference. In some of them he had recommended operation. In one, operation was successful at an advanced period of pregnancy.

TWO UTERINE FIBRO-CYSTS.

By J. Knowsley Thornton, M.B., C.M.

These tumours were removed quite recently from patients in the Samaritan Hospital, together with the uteri and appendages, and were brought before the Society as illustrating the early stage and advanced stage of this somewhat rare disease. The very large cyst in the one case simulated ovarian tumour as these fibro-cysts so often do. The smaller and more solid tumour was full of small

serous cysts (dilated lymph spaces), but in each on closer examination a similar process of breaking down could be traced. The latter case had been treated by electrolysis to the great pain and annoyance of the patient, whose abdomen was scarred with burns. She stated that the tumour had distinctly enlarged under the treatment, and that she had suffered much pain during and after the application. Both patients have done well.

FIBROMA OF THE OVARIAN LIGAMENT.

By Alban Doran.

PRIMARY CANCER OF THE FALLOPIAN TUBE; RECURRENCE.

By Amand Routh, M.D.

Dr. Amand Routh showed a specimen to represent the sequel to a case of primary cancer of the Fallopian tube reported by Mr. Alban Doran last year and published in the 'Obstetrical Transactions' for 1888, p. 194, and in the 'Trans. Path. Soc.' for the same year.

The lady, aged 49, had had a watery sanious discharge *per vaginam* for over two years, and came under Dr. Routh's observation in October, 1886. In January, 1887, medicines and intra-uterine applications having failed, the uterus was dilated and its lining membrane, which was pulpy, was freely curetted, but the discharge continued. About three weeks after this date the patient had acute inflammation in the left side of the pelvis, and in about a month a tumour became palpable on the right side of the womb. Mr. Thornton removed the tubes on March 1st, 1888, the left being bound down by inflammatory adhesion, and the right

being the seat of the carcinoma. She remained well till five months afterwards, when she was attended by Dr. Blake, of Yarmouth, for intestinal obstruction. The following month Dr. Routh found a large tumour surrounding the uterus, the whole being mobile, and extending more to the left side of the pelvis.

She then came under the care of Dr. Calthrop, of Hornsey, and died on January 25th, 1889, eleven months after the operation, her death being preceded by severe sickness and vomiting, with partial suppression of urine and albuminuria pointing to anæmia. At the autopsy, assisted by Mr. E. A. Snape, Dr. Routh found the whole pelvis to be a solid mass of cancer, in which the viscera were embedded. Secondary deposits studded the lining membrane of the uterus, the bladder and the vagina.

The stump of the right (cancerous) tube was free from deposit, showing that the operation was delayed too long.

Mr. Knowsley Thornton pointed to the fact that the tube which contained the primary cancer had been so cleanly removed that there was no recurrence in the stump, the death of the patient being due to recurrence in parts secondarily affected by the disease, parts in which it was found impossible at the time of operation entirely to eradicate the disease. He wished to call especial attention to this point as emphasising the importance of early operation in such cases, and the great danger of secondary peritoneal infection.

Mr. Alban Doran had fully described the pathological features of the primary disease ('Trans. Path. Soc.,' vol. xxxix, 1888, p. 208) and of the secondary deposits ('Lancet' and 'Brit. Med. Journ.,' May 11th, 1889) at two meetings of the Pathological Society. Dr. Amand Routh deserved great credit for the care with which he had followed up this important case and obtained a necropsy. The right tube was cancerous, the left was removed with the left ovary at the same time being disorganised by chronic perimetritic changes. Mr. Doran examined the left tube directly after Mr. Thornton operated, and found it quite free from cancer. The recurrence of the growth on the stump of the left, or non-cancerous, tube was remarkable. Mr. Doran then briefly mentioned the evidence, which appeared to prove that in this case, and in two others described by Kaltenbach and Orthmann, the Fallopian tube was the seat of primary cancer.

A SHRIVELLED FŒTUS OF THE FIFTH MONTH UTERO-GESTATION.

By Dr. Clapham.

THE UTERUS, HEART, AND BRAIN FROM A CASE OF PUERPERAL SEPTICÆMIA.

By Wm. Duncan, M.D.

Dr. William Duncan showed the uterus, heart, and brain of a woman who was seized with acute mania eleven days after delivery of a five months' fœtus, and died three days later of septicæmia. The mania was violent, without fixed ideas or delusions, alternating with lucid intervals, and sleep. Post-mortem examination revealed extensive suppuration beneath the arachnoid and extending from the base of the brain upwards over both sides of the vertex. There was a perforation of one aortic valve, with a collection of some purulent material in another.

AN ANENCEPHALIC FŒTUS.

By Wm. Duncan, M.D.

INSTRUMENTS FOR ANTISEPTIC IRRIGATION IN CHILD-BED.

By Graily Hewitt, M.D.

THE DIAGNOSIS OF PLACENTA PRÆVIA BY PALPATION OF THE ABDOMEN.

By Herbert R. Spencer, M.D., B.S.Lond., M.R.C.P.,
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(Received April 13th, 1889.)

(*Abstract.*)

Having described shortly two cases in illustration of the possibility of determining the site of the placenta by abdominal palpation when it is situated in the *upper* segment of the uterus, the author gives in detail seven cases of placenta prævia (all the cases he has investigated from this point of view) in which he has been able by palpation of the abdomen to diagnose the presence of the placenta in, or its absence from, the front wall of the lower segment before a vaginal examination was undertaken, the diagnosis being subsequently verified by vaginal and intra-uterine examination.

The seven observations were all made in multiparæ with head presentations, before the membranes were ruptured, without the employment of an anæsthetic, and in the absence of pains.

In three of the seven cases the exact site of the placenta on the front wall of the lower segment was determined by abdominal palpation, and in two of these the placenta was felt at a time when it was impossible to feel it by the vagina.

In the remaining four cases the placenta was diagnosed by abdominal palpation to be absent from the front wall.

In making the examination it is recommended that the patient lie on her back, the bladder having previously been emptied; the examination should be gentle, made in the absence of pains, and prolonged over several minutes, or repeated if necessary.

The following rules for making the diagnosis are formulated:

In an ordinary vertex presentation (placenta in the *upper* segment) the occiput, forehead (at a higher level), and side of the head can, under favourable circumstances, be distinctly felt in the lower segment of the uterus by means of abdominal palpation.

In a case of *placenta prævia* in which the head presents, the head is not felt where the placenta is situated, it is distinctly felt where the placenta is absent. In cases where the placenta is in front the organ is felt as an elastic mass of the consistence of a wetted bath-sponge, which keeps the examining fingers off the head. Its edge may be felt and has the shape of the segment of a circle; within the circle all is obscure to the touch; outside the circle the head or other part of the child is plainly felt. Impulses to the head are not clearly felt through the placenta; impulses to the head through the placenta are distinctly felt at the spot from which the placenta is absent. The same applies to combined vaginal and abdominal examination.

The author believes the method of diagnosis he has described to be of some practical importance and solicits a more extended trial of its value.

In the following paper I wish to bring before the Society a means of detecting the presence of placenta prævia by palpation of the abdomen before or during labour, to place before the Society the evidence on which the suggestion is based, and to solicit a more extended trial of its value.

I have on one or two occasions seen my master and colleague, Dr. John Williams, demonstrate to his class of students what he believed to be the placenta situated upon the front wall of the *upper* segment of the uterus; but at the time of making the following observations I was not aware that anything had been written upon the subject of palpation of the placenta by the abdomen. On referring to the literature of the subject, however, I find that in 1867 Pfeiffer,* of Demmin, in a short paper before the

* 'Monatsschrift für Geburtshülfe,' Bd. xxxi.

Gesellschaft für Geburtshülfe in Berlin, states that he has frequently been able to feel the placenta in the front wall of the body of the uterus "like a segment of a smaller globe situated upon a larger spheroid;" "it is of tense elastic consistence," "corresponds perfectly with the consistence of a spongy body, filled, for the most part, with circulating blood." My own observations agree so fully with Pfeiffer's that I believe he did really feel the placenta, but he offers little evidence and no proof of his having done so. Only one piece of negative evidence does he adduce in a case in which, before a Cæsarean section, he diagnosed the absence of the placenta from the front wall of the uterus, and the operation verified his diagnosis.

I believe I have, on several occasions, by means of palpation of the abdomen, felt the placenta situated in the upper segment of the uterus, but I have proof of having done so in two instances only, and in one of these the placenta was felt post mortem, under conditions, therefore, which render it of little value for my present purpose; but, as the observations have some bearing upon the subject of this paper, I give them here.

Observation I.—Mrs. K—, pluripara, at the full term of pregnancy, applied at University College Hospital on account of some indefinite symptoms. I carefully examined the abdomen. At the upper left side of the front of the uterus was a circular swelling distinctly raised above the general surface of the uterus, of the consistence of a wetted bath-sponge. Under this circular swelling, which measured about seven inches across, the sensation to touch was much less distinct than elsewhere, where the child could be plainly felt. The edge of the circular cake-like mass could be felt, though not very distinctly, but below what seemed the edge the limbs of the child were plainly felt. The back of the child was to the right. On account of the presence of a well-marked funic souffle I went to see the labour through. After the child was born and

waiting for a quarter of an hour the placenta was not delivered and could not be expressed. My assistant introduced his hand into the uterus and found the placenta adherent. I asked him, without telling him where I had diagnosed the placenta to be, to state where it lay. He described the exact position in which I had diagnosed it by the abdomen. The placenta had to be peeled off the uterine wall.

Observation II.—A patient seven and a half months pregnant was dying of heart disease and pneumonia. I examined her abdomen, but could not do so very thoroughly on account of her condition. I did not, however, notice any placenta on the front wall of the uterus. A few hours later this patient died, and next day I made the post-mortem examination. I carefully palpated the abdomen. The child was plainly felt. The head was below, flexed, and lying almost in the transverse diameter of the brim ; the breech above, the back to the right, the limbs to the left. The child was so clearly felt that I expressed the decided opinion that the placenta was not in front. I then just made a prick in the uterine wall, and an ounce or two only of liquor amnii escaped, when it struck me it would be more satisfactory to determine where the placenta was as well as where it was not. Accordingly I placed my hands under the uterus, and behind, on the right side of the upper part of the uterus, the placenta and its edge were clearly distinguished. On opening up the uterus the child was lying exactly as diagnosed, and the placenta in the situation where it had been recognised.

These two cases, though not directly connected with the purpose of this paper, are quoted as showing that it is possible, in certain cases, by palpation of the abdomen, to feel the placenta situated in the *upper* segment of the uterus.

This paper is, however, more immediately concerned with the diagnosis of placenta prævia by abdominal palpation.

Pfeiffer (op. cit.) says that it is very difficult or impossible to feel the placenta when situated in the lower segment of the uterus. The lower segment of the uterus is, however, thinner than the upper; it is smaller and therefore more easily and completely palpated; it is more fixed; it admits of bimanual examination; impulses to its contents are more easily transmitted to the opposite wall and (which is most important of all) it usually contains, even in placenta prævia, the most easily recognisable and most resistant of all parts of the child—the head. These reasons would lead us *a priori* to suppose that the lower segment of the uterus, instead of allowing us with great difficulty or not at all to palpate the placenta, would permit us more easily than the upper segment to do so. The following observations, I believe, will show the practicability of feeling the prævial placenta through the abdominal walls.

Case 1.—The first case in which I felt the prævial placenta by abdominal palpation occurred when I was obstetric assistant at University College Hospital in 1883. On examining the abdomen of a pregnant pluripara with a history of uterine hæmorrhage I was struck with the marked prominence of the lower segment of the uterus on the right side as compared with the left. In this situation there was to be felt a thick spongy mass through which no parts of the child could be made out. Above the brim on the left side the child's head could be plainly felt. The edge of the mass could be recognised passing obliquely up from the left to the right. I came to the conclusion that this mass must be the placenta. The examining finger, passed through the cervix, felt the edge of the placenta covering half the os on the right side, and partly to the front, exactly corresponding with the situation of the mass felt by the abdomen. I turned and delivered. After delivery the placenta did not come away; the uterus remained larger on the right side; the hand introduced into the uterus found that the placenta was adherent, and

that it was the mass described above. The placenta was removed by the hand in the uterus.

Case 2.—Mrs. S— (aged 38, four children, no miscarriages) bled when five months pregnant. I saw her a fortnight afterwards and felt what I believed to be the placenta on the left side of the lower segment of the uterus. The os was closed, and nothing definite could be made out by the vagina.

She again bled at seven and a half months, but only sent to the hospital when eight months of pregnancy had passed. The bleeding was not excessive. I was called by the obstetric assistant to see a case of placenta prævia which he said I had already seen ten weeks previously.

The following was made out by the abdomen. The child was lying longitudinally with the breech upwards, and near it a foot. The back was to the right side, the left knee at the umbilicus ; the occiput was clearly felt at the pelvic brim on the right side. The whole of the left lower segment of the uterus was occupied by a mass of soft elastic consistence, and through it no part of the child could be felt. The edge of the swelling was of circular form ; it reached upwards to within an inch of the umbilicus, to the right as far as the edge of the right rectus, to the left it passed backwards out of touch, below it disappeared behind the pubes. This mass was diagnosed as placenta. By vaginal examination it was shown to be so ; the edge of the placenta covered half the os on the left side and in front.

Case 3.—Mrs. R—, the mother of four children, bled to the extent of about a pint for the first time the day before I saw her at seven and a half months of pregnancy. The hæmorrhage had quite ceased. The child was lying longitudinally with the breech up. The head could not be made out below by the abdomen. A thickened mass of spongy consistence could be felt in the lower segment in front, but the edge could not be distinctly felt. The

os, which was very high up and far back, just admitted the tip of the finger, and through it the head was clearly felt, but no placenta. The head could not be felt through the anterior cul-de-sac. It was decided that the placenta was situated in front, though not projecting over the nearly closed os. Hæmorrhage recurring on the following day, the patient at once sent to the hospital, according to instructions. Chloroform was administered; the os was dilated by Barnes's bags to the size of a crown, and the placenta was now felt projecting over the os anteriorly. During the delivery the placenta was found to be situated exactly in front.

Case 4.—Mrs. W— (aged 40, six children, three miscarriages). The three miscarriages all occurred in the course of the year 1887.

Patient bled when three months pregnant, again at five and a half months, and this continued till I saw her at the sixth month on June 30th, 1888. The abdomen was flaccid; the uterus extended to a point one inch above the umbilicus. The child's back was felt to the right, the limbs to the left. The head could not be well felt below by the two hands, on account of its small size, but ballottement was so distinct as to make sure there was no placenta in front. The diagnosis made was that, if the placenta was in the lower segment, it was absent from the front wall. The fœtal heart-sounds were not heard, and there was no uterine souffle; fœtal movements were felt.

Per vaginam the uterus was high up; the os admitted three fingers with difficulty; the internal os gripped the fingers; the cervix was dilatable. Through the os the placenta was felt as a thick rough mass posteriorly covering half the os; it extended slightly to the left side; but by far the greater part was exactly posterior. The membranes were intact. The head presented very high up with both hands, and a loop of cord passing between the hands, beating 144 to the minute. Slight pains recurred every few minutes. On the return of bleeding the os was

in fifteen minutes dilated to the size of a crown, bimanual version was performed, the membranes ruptured and the child easily extracted without further hæmorrhage.

Case 5.—Mrs. R— (aged 22, one child, no miscarriage), eight months pregnant. She has had no pains. Five hours before delivery she bled slightly for the first time during her first pregnancy and for a few minutes only. The child is in the first cranial position. By abdominal palpation the head was plainly felt in front and at the sides, and I concluded, therefore, that the placenta could not be in front. *Per vaginam* the placenta was felt covering the whole os, which was soft and of the size of a florin; the placenta was attached behind, and its anterior edge just reached to the anterior lip of the cervix. The finger passed into the os found the bag of membranes in front. After dilatation with Barnes's bags till the os was as large as a crown piece, bipolar podalic version was performed, and a leg brought down into the vagina. As the cervix was now rigid the case was watched and left to nature, and delivery occurred three hours later, without further hæmorrhage.

Case 6.—Mrs. C— (aged 31, four children, one miscarriage), seven months pregnant, had been bleeding on and off for a week. On abdominal examination I could feel the head of the child clearly all over the front of the lower segment of the uterus above the pubes. I concluded that the placenta was behind. *Per vaginam* the cervix, soft and dilatable, was about the size of a crown, the posterior half of the os was covered by placenta, none was felt in front or at the sides. The child was presenting in the first cranial position. As the head rotated the placental edge was pushed a little to the left, but the main part remained behind. Pains were present, and there was no further hæmorrhage. As soon as the os was a little more dilated the membranes were ruptured and the delivery left to nature.

Case 7.—A multipara, pregnant about seven months, seen in consultation. The patient had been bleeding copiously for three weeks, but had refused to call in medical assistance. She was almost pulseless on my arrival and extremely anæmic. The fœtal heart-sounds could not be heard. By abdominal palpation the head could be felt plainly through the front wall of the lower segment, and I diagnosed that there was no placenta in front. The os was high up, of the size of a florin; through it no placenta could be felt till the hand was introduced into the vagina, when a marginal insertion of the placenta was easily made out, the placenta being situated posteriorly. The cervix, which was soft, was dilated by the hand and internal version performed, and the child extracted without further hæmorrhage.

The above seven cases are all the cases of placenta prævia in which I have made observations by palpation of the abdomen with a view to feel the organ. In each instance the observation has been correct. In three cases the placenta was found, by abdominal palpation, to be situated in the front part of the lower segment—once on the right side, once exactly in front, and once in front and on the left side. In the remaining four cases the evidence was negative, the diagnosis being that the placenta was not in front.

In two cases I made a correct positive diagnosis by the abdomen, which was impossible by the vagina. In every case the diagnosis was made in the presence of others before a vaginal examination was undertaken. All the observations were made in multiparæ with head presentations, before the membranes were ruptured, without an anæsthetic and in the absence of pains.

It only remains for me to indicate the method of examination.

The patient lies on her back in the usual way. As a rule, little advantage is obtained by drawing up the knees in examining by the abdomen a uterus in the later months

of pregnancy. It is very important that the bladder should be emptied. The examination is to be made between the pains.

In an ordinary vertex presentation (the placenta being in the *upper* segment of the uterus) the head lies almost transversely at the beginning of labour, and the occiput and the forehead (at a higher level) are to be easily and distinctly felt by the fingers of the two hands laid out flat outside the recti with the points downwards. Sometimes the nose is felt, and I have felt an ear; but the occiput, the forehead, and the side of the head are to be clearly made out in the majority of cases under favourable circumstances.

If, however, placenta prævia be present, and the placenta be in front or at the side, an unusual swelling may be noticed, and the head is no longer felt where the placenta is situated; in lateral placenta prævia the head may be even more distinctly felt on the opposite side than in a normal labour. Where the placenta is placed it feels as if the fingers were kept off the head by a mass of elastic consistence something like that of a wetted bath-sponge; there is nothing hard or even firm about it. In some cases a distinct edge is to be felt. The edge is shaped like the segment of a circle. Within the circle all is obscure to the touch. Outside the circle the head or other parts of the child are distinctly felt. Impulses to the head are not distinctly perceived through the placenta, whereas impulses to the head through the placenta are plainly felt at the spot from which the placenta is absent; this applies also to the combined vaginal and abdominal examination. In doubtful cases it is important that several examinations should be made, and it is constantly to be borne in mind that the placenta always keeps the same position. The examination should be conducted gently, and often a considerable time—several minutes—may be necessary to satisfy oneself of the presence of the placenta. But if the head is anywhere plainly and distinctly felt it may be safely decided that the placenta is not at that spot. If a

doubtful spot remains, a subsequent examination may clear up the difficulty.

In conclusion, I believe the method I have suggested of diagnosing placenta prævia by palpation of the abdomen to be of some practical value, and it is in the hope that its usefulness may be more extensively tried that I have ventured to lay it before the Fellows of the Society.

Dr. Braxton Hicks said we were indebted to the author for having done something to remove the slur cast by the French and others that we do not teach abdominal palpation in England. Dr. Hicks said his experience quite confirmed the observations of the author of the paper, and, indeed, he had taught much the same for many years, and incidentally in writing he had stated that in many cases the seat of placenta could be identified by the hand, the placenta being on one side and the fœtus on the other of the relaxed uterus. In a case of placenta prævia he had diagnosed the position some weeks before it was confirmed during delivery.

Dr. Barnes thought the paper was a valuable contribution to the art of scientific diagnosis. It was observed by others, and he had himself confirmed the observation that, when the placenta was seated in the upper zones and in front of the uterus, the wall was thickened and raised at the seat, forming a hillock rising above the level of the general smooth surface of the uterus. This was also confirmed by auscultation.

Dr. Matthews Duncan had long and often sought to diagnose the position of the healthy placenta during pregnancy by palpation, and had always failed. Meantime he did not believe it could be done; but what he had heard to-night would make him return again to the subject, and he was ready to learn. To know what was to be expected or felt it was necessary to divest the mind of the perception of the feeling of a born placenta and learn the feeling of an attached living placenta *in utero*. The born placenta was a thrombosed cake. Tracing the cord *in utero* as in a version, you came to the placenta and felt it ill-defined, soft, and having a fretted vesicular surface. At first you might suppose it not to be there, so ill-defined was its feeling compared with that of the placenta when born. Placenta prævia was not the best condition in which to study this supposed palpation. It should be looked for in the far more favourable conditions of advanced healthy pregnancy in a multipara with a relaxed uterus and thin abdominal wall. If it were ever made out it would be then. He had never made it out.

Dr. Champneys asked Dr. Hicks and Dr. Barnes whether, in

the cases in which they stated that they had felt the placenta from without, they had verified their diagnosis by internal palpation, or whether they felt something which they believed to be placenta. The value of Dr. Spencer's paper lay in this verification, though the cases were few. Dr. Champneys was surprised to hear Dr. Barnes speak of diagnosis of the placental site by auscultation. In two or three cases of advanced extra-uterine pregnancy, in which the placenta could be plainly felt, and in which the diagnosis was established by subsequent abdominal section, no sound was ever heard over it, though repeatedly sought for. For these and all other reasons he believed that auscultation was no guide whatever to the situation of the placenta.

Dr. John Phillips thought that if further evidence showed the facts laid down in the paper just read to be correct, a valuable method of diagnosis would result; from personal experience, however, he was inclined to doubt them. In a case of Cæsarean section which had occurred in his practice, on exposure of the uterus every attempt was made by auscultation and palpation to discover the situation of the placenta. The evidence was negative, and the conclusion was necessarily drawn that the placenta was situated at some distance from the line of incision. However, on making the incision it was found immediately beneath. This experience would, in his opinion, rather militate against the possibility of diagnosing the position of the placenta through the abdominal walls.

Dr. Herman had two remarks to make on Dr. Spencer's paper. First, he noticed that in all the cases reported the fœtal head occupied the lower uterine segment. It would be much easier to appreciate thickening of the lower part of the uterus when the hard head filled it than when it was only occupied by softer and more moveable parts of the fœtus. Second, in the cases reported, the placenta was described as an "elastic mass," the edge of which could be felt. It was exceptional for a prævia placenta to possess these characters, for it was well known* that such placentæ were generally thinner than usual, and expanded. Thus Dr. Barnes had described one that enveloped the fœtus like a sac, and Dr. Hicks one that occupied almost the whole inner surface of the uterus. He (Dr. Herman) shared in the surprise that former speakers had expressed at hearing Dr. Barnes speak of ascertaining the position of the placenta by auscultation. He thought it was now conclusively proved that the uterine souffle had nothing whatever to do with the placenta. In extra-uterine pregnancy it was so uncommon to hear it that its absence had been asserted to be a sign that pregnancy was extra-uterine.

Dr. William Duncan thought it must be very difficult to

* For facts in demonstration see Müller's work on placenta prævia.

diagnose the position of the placenta by external palpation, and in support of this he mentioned a case in which he performed Porro's operation a few months ago; there, on opening the abdomen and exposing the anterior uterine wall, there was no bulging forward of it, as Dr. Spencer maintained there would be if the placenta were in front, neither did there appear to be any deepening in the colour, rather the reverse. And yet on plunging the knife in it cut through the placenta.

Dr. Boxall said that though he made it an invariable rule to examine the abdomen with all the precautions advocated by Dr. Spencer, he had rarely found palpation of any avail in determining the placental site. He had, however, investigated the position of the placental implantation by other methods, the details of which he would not now enter upon. These observations, which he had commenced five years ago, led him to the conclusion that while the sides, front, and back were about equally favoured, the placenta tends very distinctly to avoid the two poles of the uterus. At the same time, considering that generally speaking a point somewhat nearer the upper than the lower pole is the selected site, and that the placenta is very rarely attached quite low down in the uterus, Dr. Boxall was not a little surprised to find the relative frequency with which the lower or dangerous zone was encroached upon, and that without of necessity entailing hæmorrhage. He could, however, call to mind no case in which, when proved by other means to be implanted low down on the anterior wall, it had been possible to map out the position of the placenta by palpation of the abdomen.

Dr. Galabin agreed with Dr. Spencer that it was sometimes possible to make out the position of the placenta by external palpation, but not that this could be done invariably, or as a general rule. He did not think that the placenta could ever be felt from without as a firm mass, a mass with definite outlines, or even a mass at all, but rather as the absence of a mass, and a masking of the outlines of the fœtus. After the rupture of the membranes, he had sometimes made out the placenta as a localised convexity of the surface of the uterus, elastic and soft, and generally yielding no sound to auscultation. He had specially observed this in cases of hydramnios, in which the placenta was relatively large, and in one such instance had verified afterwards the position of the placenta as agreeing with that diagnosed.

In answer to Dr. Champneys' question, Dr. Hicks said he had not put down categorically the cases, but he had for many years had such proofs from time to time as led him to feel certain that the position of the placenta could be made out by palpation not infrequently, and in regard to Dr. Matthews Duncan's observations he would add that though in many cases it may be difficult to recognise this, yet he thought that if this paper led to more extended observations, the wishes of Dr. Spencer that they would

fructify would be realised in the recognition of this matter, for he would beg to remind the Society, that it was not so very long ago that he (Dr. Hicks) first pointed out that the uterus during the whole of pregnancy was intermittently contracting and relaxing, a fact now fully recognised.

In reply to Drs. Matthews Duncan and Champneys, Dr. Barnes said that of course he accepted their account that the placenta could not be made out by palpation, as it applied to themselves; but he objected that they were not entitled to deny that others could do it.

Dr. Spencer, in reply, said he was glad to have the support of the President. He had stated in his paper that the placenta was not firm to the feel. He had likened its consistence to that of a wetted bath-sponge for want of a better simile; it was a soft elastic swelling. He was rather surprised to hear that Dr. Braxton Hicks and Dr. Barnes had long been feeling the placenta by abdominal palpation, and had not recorded their cases. From observation of the uterine souffle in normal cases and in placenta prævia, he could not admit that information of diagnostic value could be obtained by auscultation. He would be very surprised if Dr. Matthews Duncan, with one hand in the uterus and the other on the abdomen for counter-support, could not feel the normal placenta. The living placenta did not differ from the dead in consistence only; the living placenta was larger than the dead. Having had many opportunities of examining one of Dr. John Williams's cases he could confirm Dr. Champneys' statement as to the ease with which the placenta could be felt in some cases of extra-uterine gestation. The Cæsarean section and the Porro's operation cited by Dr. John Phillips and Dr. William Duncan were not examined under the conditions which he had stated in his paper to be essential, and they were not cases of placenta prævia. He agreed with Dr. Herman that it was probably easier to feel the placenta (prævia) when the head presented (as was usually the case); he had indicated this in his paper. From actual measurement of specimens he did not think the prævial placenta was unusually thin or spread out. The presenting part varied much (chiefly as a result of examination or of apoplexy). In one of his cases (at the eighth month of pregnancy) the part felt by the abdomen was an inch and a half thick near the edge.

ANTERIOR SEROUS PERIMETRITIS SIMULATING OVARIAN SARCOMA WHEN EXPLORED BY ABDOMINAL SECTION. RECOVERY WITH DISAPPEARANCE OF THE CYST.

By Alban Doran.

(Received April 6th, 1889.)

R. L—, aged 16, domestic servant, was sent to me on May 3rd, 1887, by my friend Dr. Ilott, of Bromley, Kent, who informed me that he had discovered that she was suffering from some form of abdominal tumour.

The patient was rather tall and slender, dark haired, and of a pale, unhealthy complexion. I could find no evidence of chronic tonsillitis or enlargement of the cervical glands. Her family was of a delicate constitution; a younger brother had recently died of tuberculosis. In the middle of April, 1887, her period did not appear. The abdominal swelling was then discovered, and pregnancy suspected. She admitted to her mother that she had frequently had connection with a youth of about her own age. In three weeks the tumour became very large.

I found the patient's abdomen distended. There was resonance in the flanks, and also along the middle line from the ensiform cartilage to a little below the umbilicus. The lower part of the abdomen was filled by a soft fluctuating tumour. Its upper border extended to the umbilicus above the lowest level of resonance.

Measurements on May 3rd: Umbilical level, 30 in. Two inches below umbilicus, 31½ in. Ensiform cartilage to umbilicus, 6 in. Umbilicus to symphysis pubis, 7½ in.

Right anterior superior spine of ilium to umbilicus, 7½ in. Left ditto to umbilicus, 7¾ in.

The vagina was capacious, the rugæ effaced. The uterus lay high in the pelvis; the cervix was small. The sound could be introduced for nearly three inches. The uterus was quite moveable, but every movement of the tumour was communicated to the sound. The tumour did not descend into the pelvis.

The patient's tongue was bright red and glossy. Her appetite was peculiar; she preferred chewing pills to swallowing them. The mammæ were well formed, but showed no signs of enlargement.

I saw her once more on May 31st. The fluctuation in the tumour was less distinct, and it felt harder along its right and left limits. Measurements: Umbilicus, 29 in. Two inches below umbilicus, 29½ in. Ensiform cartilage to umbilicus, 5¾ in. Umbilicus to symphysis pubis, 8½ in. Right spine of ilium to umbilicus, 7 in. Left ditto to umbilicus, 7 in. Thus the tumour had decreased in bulk, except in one direction, having gained one inch between the umbilicus and the pubes. I took care to measure the abdomen myself on every occasion.

On June 16th she was admitted into Mrs. Mann's Nursing Home, Devonshire Street. Once more the tumour had undergone alteration. Fluctuation was again distinct. Measurements: Umbilicus, 31½ in. Two inches lower, 32½ in. Ensiform cartilage to umbilicus, 6¾ in. Umbilicus to symphysis pubis, 9 in. Right spine of ilium to umbilicus, 9 inches. Left ditto to umbilicus, 8¾ inches. Thus the measurements had increased in every direction, exceeding their extent on May 3rd. The bulging below the umbilicus alone had steadily increased. The girth had increased after diminishing. The flank measurements showed the greatest proportional and absolute increase. The temperature was 99°, pulse 84. The catamenia had never appeared since March. The patient looked more cachectic than in May.

I determined to explore by abdominal section. I believed

that the tumour was most probably a cystic sarcoma of the ovary with a short pedicle. The disease is not rare in young girls, and is generally attended with amenorrhœa, as Leopold and others have noted. The tumour was so distinctly circumscribed, apparently moveable, and not complicated by any of the pelvic symptoms of perimetritis or parametritis that I could not bring myself to believe that it was a product of inflammation or abnormal gestation, and not a new growth.

On June 18th I operated, assisted by Drs. Bantock and Ilott; chloroform was administered by Mr. Stormont Murray. In dividing the transversalis fascia, the peritoneum, which could be recognised by the urachus, was found to be extremely thick. When divided, some rather firm spongy tissue was incised. It was of a dull yellow colour and oozed freely. These appearances tended to confirm my previous impressions. As the peritoneum was adherent to, or rather incorporated with, the growth, and as the pelvic symptoms indicated close connection with the uterus, I thought it best to close the abdominal wound, and in this decision I was supported by the gentlemen who assisted me.

The young girl made a rapid recovery, her temperature never exceeding 99·6°, nor her pulse 84. Flatus passed freely on the second day, and there was no trouble when her bowels were opened on June 25th. Her tongue remained very red, and she suffered occasionally from heartburn during convalescence, but she was subject to dyspepsia, and the hot weather (for the operation was performed in Jubilee week) was trying to her. On June 30th she left the Nursing Home in improved general health. I gave her mother a gloomy prognosis.

On September 21st, 1888, fifteen months after the operation, to my great surprise, I saw the patient once more. Her mother told me that profuse vaginal discharge occurred shortly after she left the Nursing Home. The swelling then diminished, but the patient grew weaker. Dr. Ilott recommended her to see me again. The catamenia had

never reappeared, nor have they yet been seen (April, 1889).

The patient had grown and gained flesh, but was still anæmic, and made herself out to be unfit for any employment. The tongue was still very red and glossy.

On examination, I found that no trace of the tumour could be detected. The uterus was bulky, anteverted, and fairly, but not freely, moveable. There was a sensation of fulness on each side of the cervix.

The patient has remained under my observation since October. On March 26th, when last examined, the uterus was anteflexed, the body slightly enlarged and displaced to the left. No tumour nor any uncircumscribed deposit could be detected in the abdomen. I did not introduce the sound, as on every occasion when I saw the patient she had to return at once by train to Bromley. I believe, on substantial grounds, that the sound may do much harm under such circumstances. The girl complained of pain some time after taking liquid food, a frequent symptom when old peritoneal adhesions exist.

In this case an exploratory operation was not sufficient for diagnostic purposes. I succeeded in detecting the outer surface of the parietal peritoneum, and I made out that it was much thickened. The thickening was probably even greater than was apparent. What looked on section so like the sarcomatous strongly-adherent wall of an ovarian tumour was really either the deeper part of the parietal portion of the peritoneum or omentum, altered by old inflammation. Had I cut a little deeper I might have come upon a collection of fluid, and then the diagnosis would have been different and the exposed cavity could have been drained. From experience, however, I know that meddling with a growth which appears malignant is very dangerous. I once laid open a secondary cyst in a large ovarian tumour which was malignant and irremovable. I removed all the solid growths from the wall of the cyst, sewed its edges to the abdominal wound, and drained. Though the patient recovered and lived several months,

the case gave me much anxiety. In the present instance the tumour was not bulky as in the case just noted, and there was no object in lessening its bulk. Had I recognised the true nature of the present case, the sequel proves that emptying the fluid would have been unnecessary, if not dangerous. The temperature was low ; there was no clear evidence of abscess. Lastly, I might have cut through more important structures had I proceeded further. The exploration did no harm ; perhaps it hastened resolution of the fluid ; perhaps the cutting of the thickened serous membrane proved beneficial.

The true nature of the " tumour " merits consideration. Was it a sarcoma which underwent spontaneous cure? This is against all pathological and clinical experience. Was it a soft fibroid which disappeared? Dr. Matthews Duncan has noted the disappearance of fibroids, but the age and history of the case at least contradict such a hypothesis. After seeing the patient again in October, I thought, for a time, that the tumour might have been an extra-uterine sac, the sarcoma-like tissue being degenerate placenta. The history before and after the exploration was, however, quite unlike the course of events in ectopic gestation. There was no acute pain, the pelvis was free from any objective sign of abnormal gestation, fluctuation is rare in a fœtal sac, and, lastly, the fœtus and placenta would hardly disappear so as to be impalpable fifteen months after exploration.

In cases of anterior parametritis where the sub-peritoneal connective tissue between the pubes and the umbilicus is involved, a cuirass-like deposit rather than a circumscribed cystic tumour is felt. In my case the urachus was plainly seen on the anterior surface of the thick layer, which was divided by the scalpel. Hence that layer could not have been subserous connective tissue. The uterus was freely moveable at the time of exploration, a very unusual, if not impossible, condition in parametritis.

The after-history contra-indicates tubercular disease of the abdominal or pelvic viscera. The patient is still a

delicate girl, but tubercular peritonitis would hardly have undergone spontaneous cure under the circumstances, for her general health remains weak, and she has not been leading a very healthy life. In fact, had the disease in 1887 been tubercular she would have hardly lived till now, or at least would have most probably grown worse.

I believe that the disease was anterior serous peritonitis. I employ the term as understood by Dr. Matthews Duncan. I think that the tumour was a circumscribed collection of fluid bounded by thickened peritoneum and extremely thickened omentum* anteriorly. This condidition was brought about by some uterine trouble, possibly originating in early abortion or gonorrhœa. I do do not think that it was unconnected with uterine disease; in other words, it is more correctly to be termed "serous perimetritis" than "encysted dropsy."

In the twenty-ninth volume of the Society's 'Transactions' (1887), p. 149, is an interesting woodcut representing a case of anterior perimetritis. The specimen was exhibited by Dr. W. S. A. Griffith. In my own case the condition was, I suspect, very similar. The absence of any vesical trouble was remarkable, irritability of the bladder being almost constant in subacute and chronic forms of anterior perimetritis. The most doubtful feature in my case was the absence of any part of the tumour from the pelvis. In Dr. Griffith's illustration just noted, the serous collection has forced its way downwards in a singular manner. Indeed, the lower limits of the utero-vesical pouch appear to have absorbed the cellular tissue between the bladder and cervix, so that it reaches the anterior vaginal wall. This condition is described as "extension of abscess into anterior parametric region"—the contents of the cyst being evidently purulent. In my case the lower part of the tumour did not descend into the pelvis. Perhaps some intestine, occupying the

* Specimens in the Pathological Collection, Mus. R. C. S., series xxi, "Injuries and Diseases of Peritoneum," show how greatly the omentum may be altered by disease.

utero-vesical pouch, lay below the encysted fluid. More probably the pouch was effaced by adhesive inflammation. The profuse vaginal discharge might have been pus or serum escaping through the Fallopian tube, but the patient was not under the care of any medical man when it occurred, so that no accurate exploration of the phenomenon could be obtained.

The case bears a resemblance in some respects to another recorded by Forget, of Strasburg, and quoted by Dr. Matthews Duncan in his 'Practical Treatise on Perimetritis and Parametritis.' The patient died of cancer of the body of the uterus at the age of sixty-two. Seven years before death ovarian dropsy was diagnosed, and she was tapped four times. After death an ovoid cavity was discovered, full of "a yellow limpid serosity." Its anterior boundary was the great omentum thickened and adherent to the parietal peritoneum. It represented anterior perimetritis and must have preceded the cancer, whatever may have been its cause.

Mr. Knowsley Thornton thought the case would probably turn out to be tubercular. He had met with several apparent cures from exploratory incision in like cases. The amenorrhœa would strengthen this view, as it was commonly present with tubercle of the peritoneum in young girls. The time which had passed since the operation without fresh outbreak did not, in his opinion, at all contra-indicate tubercle.

Mr. Alban Doran said, in reply, that from the description of the operation it could be seen that the operator was unable to ascertain the condition of the tubes. Owing to the habits of the patient before her illness, salpingitis following abortion or gonorrhœa was very probable. On the other hand, considering the family history, Mr. Thornton's belief that tubercular disease existed was very reasonable. Mr. Doran admitted that his own arguments against that theory were inconclusive. Were the theory absolute truth, the morbid condition must be termed anterior serous tubercular peritonitis. It must not be forgotten that gonorrhœa and other inflammatory affections appeared to predispose patients to tubercle of the genito-urinary tract.

JULY 3RD, 1889.

ALFRED L. GALABIN, M.D., President, in the Chair.

Present.—41 Fellows and 12 Visitors.

Books were presented by Sir H. W. Acland, K.C.B., Dr. Barbour, Dr. Calderini, Dr. Frommel, and Dr. Rentoul.

Harold A. Des Voeux, M.D.Brux.; George R. Lake, M.R.C.S.; and Abraham Wallace, M.D.Edin., were admitted Fellows of the Society.

The following gentlemen were elected Fellows of the Society :—Francis Robert Bryant Bisshopp, M.A., M.B., B.S.Cantab.(Tunbridge Wells); Alfred Brown, M.A., M.B., C.M.Aber.(Manchester); Frederick Henry Davies, M.B., C.M.Edin.(Tilbury); and William Harry Christopher Newnham, M.A., M.B.Cantab. (Bristol).

SOLID TUMOUR OF OVARY.

By W. A. MEREDITH, M.B., C.M.

MR. MEREDITH showed two specimens of solid ovarian growth, recently removed by abdominal section from a patient under his care in the Samaritan Free Hospital, twenty-two years of age. The right ovary with tube attached constituted a somewhat reniform tumour of irregular contour, weighing six and a half pounds. On section it was seen to be solid throughout with deeply seated areas

of commencing mucoid degeneration. Microscopically its structure was that of a fibro-sarcoma, characterised by abundance of fibrous tissue with numerous interspaces containing masses of large round nucleated cells, some of which also lay scattered in the substance of the intervening fibrous bundles. The left ovary, weighing one and a half pounds, consisted of two masses of which the larger had been firmly adherent in the true pelvis. Its structure resembled that of the right ovary, but was of somewhat less firm consistence, with a larger proportion of cell-elements. The uterus was small and healthy in appearance; and no traces of secondary deposits elsewhere were discovered at the operation. The specimens were of some interest from a clinical point of view as evidence of the fact that advanced sarcomatous disease of both ovaries does not necessarily tend to induce amenorrhœa. The catamenia in this instance had continued perfectly regular, the flow having latterly increased in amount, lasting on an average seven days instead of only three or four, as had formerly been the case. The patient was convalescing satisfactorily.

HÆMATOSALPINX.

By C. J. Cullingworth, M.D.

Dr. Cullingworth exhibited a hæmatosalpinx removed by abdominal section seven days previously. The patient, after a slight continuous hæmorrhage lasting five weeks, and not preceded by any menstrual irregularity, was suddenly seized on June 3rd with severe "bearing-down" pain, vomiting, and extreme faintness. The acute symptoms abated in a few hours, but the patient remained blanched and ill. The external hæmorrhage became more profuse, and she applied for admission to the hospital. Eight days after admission, viz. on June 16th, she had

a recurrence of the alarming symptoms, and again a week later. There was an ill-defined swelling in the hypogastrium, and a soft tongue-shaped swelling in Douglas's pouch. The uterus was normal in size, and though embedded in the supra-pubic mass was fairly moveable. The case was thought to be one of recurring intraperitoneal hæmorrhage with hæmatosalpinx. On opening the abdomen the tumour was found to consist of fluid and clotted blood, to the amount of thirty ounces, surrounding the right Fallopian tube, which was distended with blood-clot. The free end of the tube was widely open, and dark clots protruded from it. The extravasated blood was shut off from the upper part of the peritoneal cavity by a thick roof composed chiefly of firm clot and thickened omentum. The tube was removed and the blood cleared out. The patient is making a good recovery.

The portion of tube removed measures three inches by two inches. It has an outer coat of firm adherent blood-clot. The uterine end is normal. The opening at the free end has a diameter of an inch; the fimbriæ are folded back upon the tube.

CANCEROUS UTERUS REMOVED BY VAGINAL OPERATION.

By W. S. Playfair, M.D.

RUPTURE OF UTERUS.

By P. Horrocks, M.D.

The patient from whom the specimen was taken was a poor woman, multipara, and had been delivered by version, performed on account of a transverse presentation with prolapse of funis. Considerable difficulty was experienced in delivering the child, which was dead, and it was probable that the rupture was the direct result of traction upon the child. There was no particular collapse, and the placenta was expressed in the usual way. The uterus was syringed out with a solution of perchloride of mercury, but as the fluid did not return an examination was made, and the rupture discovered.

Dr. Horrocks was sent for and had the woman removed at once into Guy's Hospital, which was close by. Chloroform was administered, and the peritoneal cavity was washed out very thoroughly with abundance of hot water (105° F.). There did not seem to be any bleeding, the rent was sewn up as far as was possible by drawing down the uterus with tenacula. The patient lived twenty-two hours.

At the post-mortem very little blood was found in the peritoneal cavity, but there was recent peritonitis. The rent had extended from the os externum through the right side of the cervix, and for three inches along the posterior wall of the uterus near the right side. The ligature had drawn the edges together somewhat, but still there was a gaping wound above leading from the peritoneal cavity into the uterine cavity.

Dr. Horrocks mentioned another case in which the vagina had been torn from the uterus posteriorly, in efforts made at version. In that case he sewed it up from the vagina, but the patient only lived two days.

He regretted that he had not opened the abdomen and

operated from above, either removing the whole uterus (Porro's operation) or if possible sewing up the rent from within, bringing the peritoneal surfaces together.

Dr. Playfair said that Dr. Horrocks's cases were of great practical interest, and seemed to him to require some comment, since the important subject of the proper treatment of lacerations of the uterus had not, so far as he could remember, been discussed in the Society. It was of great importance that the principles of treatment should be thoroughly understood. Dr. Horrocks had attempted to sew up the rent from the vagina. He had himself, however, stated his doubt as to the propriety of this course, and he (Dr. Playfair) was therefore encouraged to say how he believed it should be a settled rule that whenever the uterus was so torn that the peritoneal cavity was laid open, the abdomen should be opened, the peritoneal cavity thoroughly washed out, and the laceration either sewn from above, or the entire uterus removed. Indeed it should be treated exactly as in the case of the improved Cæsarean section or Porro's operation. This seemed to him the only procedure which gave the patient any reasonable hope of recovery. Every considerable laceration must be attended with the escape of much blood and liquor amnii into the peritoneal cavity. To leave this to decompose in the abdomen seemed to him to preclude any chance of recovery.

In answer to Dr. Playfair, Dr. Horrocks said that plain water was used to wash out the peritoneal cavity, and that he preferred plain water to wash out the uterus in midwifery cases, where it was thought desirable to irrigate at all, as after instrumental delivery.

FRAGMENT OF MEMBRANE PASSED FROM THE UTERUS.

By Alban Doran.

The distinction between the substance passed in membranous dysmenorrhœa and the decidua in abortion is a subject of high importance. On that account this fragment is now exhibited.

The patient is a lady aged 39. She has borne four children; the last confinement occurred fifteen years ago.

She is now living with her second husband. Last year the ovaries and tubes were removed, it is said, in the provinces. No benefit followed, indeed the patient grew worse. She had previously suffered from enlarged uterus and menorrhagia. Menstruation continued after the operation with severe pain. During one of these attacks of pain the fragment now exhibited came away. The medical attendant to the patient believed that it was dysmenorrhœal membrane. Sir Spencer Wells, to whom I am indebted for the specimen, sent it to me for examination. It is clearly not an entire cast of the uterine cavity. One side is fleshy and relatively smooth, the other is extremely flocculent. In the microscopic sections prepared by Dr. Penrose, the cells in the stroma appeared large, as in the decidua vera. No epithelium of any kind could be detected,—any that may have existed must have been destroyed by maceration. The size of the cells is hardly sufficient to settle the diagnosis of the case. The precise nature of the fragment must remain doubtful.

The fragment strongly resembles No. 4602, in the Pathological Series, Mus. R.C.S., presented by Dr. Champneys. The patient was for some time under his observation and my own in the out-patient department of the Samaritan Hospital in the year 1881. She was a married woman aged 43. For eighteen months she had suffered from severe pains during the menstrual period, which recurred with perfect regularity. At each period fragments similar to those preserved and numbered 4602, and to those exhibited this evening, were expelled. The patient had not been pregnant for several years.

Much was said concerning the expulsion of membranous shreds during the catamenial period in Dr. J. Williams's communication "On the Natural History of Dysmenorrhœa" ('Trans. Obstet. Soc.,' vol. xxiv, 1882). Especially important in relation to this question is the theory that each expulsion of the villous fragments or entire casts of the uterine cavity represents a very early abortion. The patient, according to this theory, becomes impregnated

between each catamenial period. A case related by Dr. Cory ('Trans. Obstet. Soc.,' vol. xx, 1878) strongly supports the theory. A married woman passed membranes, often "very perfect casts of the uterine cavity," monthly with severe pain of a forcing and intermittent character. Dr. Cory found that on two occasions, when the patient was away from her husband, no membranes were passed. Afterwards she lived in the country apart from her husband for nine months, and during that time she menstruated regularly without any membrane appearing. In the course of the discussion on Dr. Cory's case, it was suggested by Dr. Aveling that the membrane did not represent a product of impregnation, for a hyperæmic condition leading to membranous dysmenorrhœa might have been caused by the irritation of sexual intercourse.

The absence of the ovum in all cases of the kind is an effectual bar to proof positive or negative. We have no means of ascertaining whether an early ovum disappears the more rapidly when shed into the vagina, where it must decompose, or when dropped into the peritoneal cavity, where it is probably absorbed. In both cases disappearance of the ovum must occur very rapidly. The fact remains, in respect to the fragment shown to-night, that no ovum could be found. There may or there may not have been an ovum. Though both appendages were said to have been removed, menstruation continued and, according to the theory above noticed, impregnation took place. The extent, however, to which the appendages were removed must remain obscure.

All who are interested in the subject of membranous dysmenorrhœa should study the beautiful preparations illustrating that condition in the museum of St. Thomas's Hospital. Our opinion as to their character as defined in the catalogue must be qualified, for reasons given above; unfortunately, moreover, no history is given in any case.

Specimens in the Museum of St. Thomas's Hospital.

GG. 4. "A fibrinous cast of the uterus, taken from a case of dysmenorrhœa." A perfect triangular sac laid open. The cast is thinner than the fragment exhibited this evening.

GG. 4^1 (MSS. note) Cast consisting of the mucous membrane of the uterus. A perfect triangular sac laid open. The lower part is almost as thick as the tissue of the present specimen.

GG. 5. Pieces of dysmenorrhœal membrane. They are as flocculent as the surface of the present specimen.

HH. 7^3. Decidua with ovum, expelled three months after last period. The uterine surface is far more flocculent than that of the present specimen. The presence of the ovum and the evidence that it is at least over one month old make this specimen quite different in character from the preceding. In Dr. Cory's case the patient volunteered the statement that when she went a day or two over her time the membranes seemed larger.

I must thank my friend, Mr. Shattock, for permission to examine these specimens closely. As a good example of the kind of membrane more commonly expelled in membranous dysmenorrhœa, preserved in a museum, I may note No. 4601, Path. Series, Mus. R.C.S. The specimen, presented by Dr. Bantock, is described as "a collection of thin membranous structures, expelled, within the course of a few months, from the uterus of a young woman at each time of menstruation. This was always attended with severe pain." The membranous structures do not present the villous appearance so marked in the fragment exhibited to-night, and in the specimens above described.

Since the above notes were prepared, my attention has been turned to a monograph of great importance by Charles-Sedgwick Minot, of Harvard Medical School, entitled "Uterus and Embryo: I. Rabbit; II. Man." It will be found in the 'Journal of Morphology' (Boston, U.S.A.) for April, 1889, and contains most valuable reports

of microscopic preparations of the human cord, allantois, amnion, chorion, and uterus in menstruation and pregnancy and after abortion. In the summary to that part of the monograph which concerns the subject of the above notes it is stated that "the menstruating uterus is characterised by hyperæmia, by hyperplasia of the connective tissue of the mucosa, and by hypertrophy of the uterine glands; the upper fourth of the mucosa is loosened and breaks off: *there are no decidual cells.*" This latter assertion is of special importance in relation to microscopic appearances of doubtful fragments expelled from the uterus. Dr. Minot states that in his article on the decidua in Buck's 'Reference Handbook of the Medical Sciences,' ii, p. 390, is a summary of the changes occurring during menstruation, and stress is there laid upon two points emphasised by previous writers, namely, the increase in the number of leucocytes and the presence of decidual cells. Since Dr. Minot's own observations have failed to confirm these statements he can no longer accept them.

The proliferated connective-tissue cells are those, probably, which become decidual cells when the *decidua menstrualis* is changed into the *decidua graviditatis*. He then turns attention, for the sake of comparison with his description of the uterus during menstruation, to his account of the uterus one month pregnant. If decidual cells be absent in normal menstrual decidua it does not follow that they are absent in dysmenorrhœal membrane.

Dr. John Williams said that Mr. Doran had misunderstood his view with regard to the structure of the decidua of pregnancy. He had not stated anywhere that the decidua of menstruation contained the large cells which were seen in the decidua vera. On the contrary, he agreed with Wyder in holding that the large decidua cells offered means of distinguishing the two structures. The membranes passed in so-called "membranous dysmenorrhœa" were of different kinds. Some were membranes of early abortion. Such was proved to be the case in the well-known case of Tyler Smith. Most were cases in which there had been no conception. That the membrane was shed in virgins had been amply proved. He had observed it in several instances.

Dr. Griffith said that a cursory examination of a single section under the microscope was not sufficient to form an opinion as to the nature of the mass. He asked Mr. Doran whether the patient had passed similar masses on other occasions or not, as it was at least unlikely that it was an example of a dysmenorrhœal membrane if this was the only occasion.

Mr. Alban Doran, in reply to Dr. Griffith, laid stress on the fact that the membrane was only passed on one occasion. He maintained that every specimen of doubtful membrane of this kind should be preserved and carefully examined. The distinctions between dysmenorrhœal membrane and the decidua of pregnancy and between the latter and normal menstrual decidua had not been accurately determined. In addition to these questions, the present specimen might throw light on the nature of changes in the endometrium after total or imperfect removal of the ovaries and tubes. Any suspicion of impregnation might surely be dismissed, for both tubes must have been tied. Mr. Doran had not intended to imply that Dr. Williams professed to speak authoritatively on the minute anatomy of the menstrual decidua in his paper on dysmenorrhœa. The author simply quoted the opinions of authorities current seven years ago, when that paper was written.

CYST OF THE OVARY OF A MARE.

By C. Stewart Pollock.

This specimen was removed from a bay mare, aged 11, a hunter and hack, never known to be in foal. She had varicose veins on the inner and outer side of the right thigh. While standing in the stable she was suddenly seized with violent colic ; she had great pain for two days, passing nothing. After this she twice staled copiously, and was relieved. She was killed the morning of the third day.

Post-mortem.—There was a tumour of the right ovary, evidently loosened from its attachments and strangulating the upper part of the rectum. The tumour, with both the ovaries and Fallopian tubes, was preserved.

The tumour is hard and heavy, and has numerous nodules. It weighs two pounds, and measures thirteen inches in circumference. On section it shows the characteristics of a dermoid, the cartilage is mostly hollowed out into cysts containing grumous material, probably lining membrane, but neither bone, hair, nor teeth, were found.

The specimen was referred to a Committee consisting of Mr. Pollock, Mr. Bland Sutton, and Mr. Doran.

Dr. Cleveland inquired if the mare had shown a strong proclivity to sexual intercourse, as evidenced by what is termed in the stable "much horsing."

Mr. Alban Doran, in reference to Dr. Cleveland's observations, said that whatever might be the case in mares, dermoid cysts appeared to exert no influence on the sexual physiology in women. The great majority of ovarian cysts removed from children, long before the development of the sexual instinct, were dermoid.

LACERATION OF THE VAGINA IN LABOUR.

By J. Matthews Duncan, M.D.

(Received April 8th, 1889.)

(*Abstract.*)

Dr. Matthews Duncan had recently observed two cases of a remarkable vaginal abscess in women recently confined and having alarming symptoms. He attributes them to laceration of submucous cellular tissue, and consequent hæmatoma. They were characterised by a rounded opening admitting the tip of the finger, which when pressed entered a cavity as big as a walnut.

The injuries to which I now draw attention are lacerations in the length of the vagina, produced spontaneously, that is, not directly by instruments nor the hand of the accoucheur. They have nothing in common with those transverse lacerations high in the canal, described by Goldson, which are often confused with rupture of the uterus and are indeed closely allied to it in all respects. They are to be distinguished from those not uncommon longitudinal lacerations which are continuous with lacerations beginning in the margin of the cervix and generally leave an easily felt cicatricial band. They are also to be distinguished from those lacerations of the lower part of the vagina which are continuous with lacerations of the hymen or of the vaginal orifice, and of which most are included under the designation of laceration of the perinæum.

The passage of the fœtus through the vagina from os

externum uteri to vaginal orifice is, no doubt, as usually described, easy and without injury to the vagina; but vaginal injuries, not at either end of the passage, are seldom looked for, and I believe they are more common than is generally supposed. That they do happen we have evidence in the occurrence of recto-vaginal laceration and in some cases of central rupture of the perinæum, both of which accidents I have described in my book on 'The Female Perinæum.'

Laceration by the forceps may be of two kinds, direct and indirect. Direct laceration or cutting has nothing to do with the subject of this paper. It is frequently observed and may be high up posteriorly or anteriorly, or it may be along either side of the vagina, or it may be near the orifice and down to the ischio-pubic ramus. Such injuries by forceps are more or less incision-like wounds, and their importance does not need to be insisted upon. They are, for the most part, the result of bad application or bad working of the forceps; sometimes they are inevitable.

Indirect laceration by forceps is well known and is familiarly exemplified in the laceration of the perinæum, often produced by its working. Though produced by its working, the laceration might have been quite as great had forceps not been used. In like manner laceration of vagina higher up, that is between cervix and os vaginæ, is well seen when forceps is used, and when this instrument had no direct action in causing it.

It is natural to expect laceration of the vagina in its course more frequently and more severely when forceps is used than when it is not used, for the cause of the laceration and the need for forceps assistance naturally go together. The lacerations not caused directly by forceps are known by their situation where forceps did not act and, in the peculiar laceration specially under consideration, by the character of the injury.

The researches of Tarnier show that the soft parts have much more to do with the mechanism of delivery than has been generally held, and this leads us to be more expec-

tant of injury in doing their work. The vagina may be undilatable and stretched transversely, may be lacerated longitudinally. If the forceps is used to pull the head through an undilatable vagina, laceration, not directly by the forceps, is likely to occur. Besides, laceration directly by the forceps is more likely to occur than when the vagina is soft and capacious. I have not observed a vagina rigid as well as undilatable, and consequently refer the laceration to mere want of capacity, to overstretching, and this remark applies to the perinæum as well as to the vagina.

In some cases the laceration is not accounted for, and here I may mention that I know of two cases where the urethra was unaccountably lacerated in the middle of its course. In one of these the mother died with enteritic symptoms and albuminuria, and her child about two days afterwards with a diphtheritic patch on the glans penis.

I have spoken of indilatability of the vagina, and, in this connection, it is proper to direct attention to the demonstrations of Hecker and of others that the well-known lacerations of the perinæum have no direct relation to the bulk of the fœtal head. As in the case of the perinæum so in that of the vagina, mere bulk is an essential element in the causation, but there is no reason to hold that the frequency of the laceration is in direct proportion to the mere bulk of the passing head.

Now I come to the peculiar cases which give the title to this paper. In them there is found in the vagina, on its side, high up or low down, a rounded aperture, having a sharp margin. When the finger is passed or pressed through this aperture it enters a capacious cavity. In two cases which I have seen recently, both within a few days after delivery by short forceps, the injury was not to be explained by direct action of the instrument. The cavity or abscess was as big as a chestnut or walnut. In one of the cases the cavity was full of fœtid pus, while in the discharges no fœtor was to be detected; no other

cause of fever was discoverable; she died. In another case with high fever and alarming symptoms there was at no time fœtor of discharges nor of the pus in the abscess cavity; she recovered. In the latter case there was free hæmorrhage after delivery; it was of short duration, not from the uterus, and was referred to vaginal laceration. The only peculiarity demanded in treatment was to keep the contents of the little cavity strictly aseptic.

In the greatest case of thrombus of the vulva, or rather hæmatoma of a labium, which I have seen, the tumour was at least as big as the head of a six months' fœtus. In its vaginal aspect there was a lacerated opening an inch and a half long. It came on at the end of parturition. The large cavity was emptied of clot and freely suppurated. The woman did well. It appears to me that the cases now under special consideration own a similar history.

Florinski and others have shown the variations in lacerability of different tissues, and the same is practically attested in the post-mortem theatre; for, dissecting women dying soon after delivery, I have repeatedly found ecchymosis or small thrombus or hæmatoma beneath the mucous membrane of the vagina; the submucous cellular tissue had given way while the mucous membrane over it was entire.

For the production of such cavities as I am here describing it is only necessary to suppose the occurrence of such an ecchymosis or hæmatoma of the vagina and its suppuration. The opening into the suppurating cavity may be formed after suppuration or simultaneously with the formation of the hæmatoma. In the hæmatoma of the labium which I have mentioned, the lacerated large opening was certainly present, while the blood was accumulating and distending the labium. If the hæmatoma does not suppurate it will cause no trouble.

Dr. Hayes thought the explanation of these interesting cases was valuable and suggestive. He had not long ago seen a case which lent it support. A primipara, over thirty years of age,

some few days after her confinement, which had been slow but normal, complained of pain in the vagina and vulva. There was a short perineal tear. Slight febrile disturbance arose, and vaginal pain became extreme. Upon further examination a semi-fluctuating swelling the size of a Tangerine orange was felt in the vagina not far from the orifice. Subsequently a well-known surgeon was consulted, who thought it was an abscess, but upon opening, its contents proved to be chiefly blood-clot mixed with some purulent grumous fluid. Of course Dr. Duncan's cases might have had a septic embolic origin.

Dr. Cleveland was at a slight loss to understand one of the author's remarks. It appeared that in both cases short forceps were used, and yet it was thought that in neither could the laceration be attributed to them. If the author himself had operated there would have been no need to raise the question, but he submitted that a strong guarantee was requisite, under the circumstances, for excluding the probability of a wound having been accidentally inflicted.

Dr. Herman had seen one curious case of laceration of the vagina, one of a class to which allusion was made in the paper, although that class was not the main subject of the paper. It occurred in a patient with a flat pelvis. The head entered the brim with its long diameter transverse, and was delivered with forceps, the forceps being applied in the sides of the pelvis. After delivering the head and removing the forceps, he was waiting for some indication of uterine action that he might assist in the delivery of the shoulder, when he saw the hand protrude through the anus, the uninjured perinæum being between the hand and the head. Then uterine action came on, and the shoulder was driven down, tearing through the recto-vaginal septum from above downwards.

Dr. Champneys had met with two cases, both some years ago, both in hospital practice, and both fatal from septicæmia. In one case the forceps was used to terminate labour, for eclampsia, very little force was necessary. In the other, labour was natural, and apparently easy. In both, the openings were round and unlike lacerations. In the latter of the two cases the cavity looked unhealthy, and the veins starting from the placental site, and also the internal iliac veins, were full of pus. The cases struck him as unusual, and he remembered them well.

Dr. Boxall said that the interesting observation of Dr. Matthews Duncan brought to his mind a case which occurred at the General Lying-in Hospital at the beginning of 1884. Though the first stage was prolonged the labour was otherwise normal and easy. The patient was a weakly primipara. She died seventeen days after delivery. Vaginal examination on the eleventh day revealed the presence of a thickening at the roof of the

vagina fixing the cervix, but no laceration. In the post-mortem examination, quite at the upper part of the vagina, and immediately in front of the cervix, were found two holes with clean-cut edges, each the size of a sixpence, one on either side of the middle line, and a similar but smaller hole of sufficient size to admit a goose-quill below and between them. They were found to intercommunicate, and to lead to a cavity situated beneath the mucous membrane, and large enough to accommodate a crown piece. The walls of this cavity were infiltrated with reddish yellow material of a creamy consistence. No cause could be found to account for this condition at the time, and one was disposed to attribute it to traumatic influence, though no history pointing to such could be ascertained. The punched-out character of the holes in a syphilitic subject led one to entertain the possibility of specific ulceration, but no definite conclusion was reached. Dr. Boxall was now disposed, in view of the observations of Dr. Matthews Duncan, to consider the cavity as originating in a hæmatoma, which had subsequently suppurated and opened into the vagina spontaneously.

Dr. Horrocks said he had seen two cases bearing on the question. One was with Dr. Lynn, of Woolwich, in which there was a hæmatoma between the vagina and the rectum, which broke down and opened by a pin-hole orifice into the vagina. It was freely incised, and soon got well. The other was a case in which the patient complained of great pain on defæcation, and on examination a lump was felt in the submucous tissue of the posterior wall of the rectum. He asked if this might not have been caused by pressure during parturition, the intervening structures not being lacerated.

Dr. Spencer had seen two instances of the injury described by Dr. Matthews Duncan. They occurred in primiparæ delivered naturally. In one (inflammation in the usual situation being absent) there was induration of the recto-vaginal septum low down in the middle line, attended by high fever and followed by the discharge of pus and blood into the vagina from a ragged cavity by a hole of the size of a pea. This had led him to the diagnosis of suppurating thrombus. The other case was similar in situation, but was not observed to the end. If patients were systematically examined some time after labour, injuries of the vagina, sometimes unaccompanied by symptoms, would, even in careful hands, be found more frequently than was generally supposed.

Dr. Matthews Duncan had dissected in Paris several puerperal fever cases, and was astonished with the frequency of submucous vaginal ecchymosis or thrombus. The case of thrombus of the labium mentioned in his paper showed that blood might so accumulate to a very great extent while there was a

large opening for its exit. These facts were the basis of his theory of the peculiar abscesses described. He was familiar with longitudinal lacerations of the vagina, spontaneous and by forceps, seeing many of them in consultation when alarming symptoms supervened post partum, and having observed them in his private practice. Such lacerations could not be confused with the lesion he now described, for in these latter there was no evidence of laceration.

CHOREA IN PREGNANCY.

By Montagu Handfield-Jones, M.D.Lond.,

LECTURER ON MIDWIFERY AND DISEASES OF WOMEN TO ST. MARY'S HOSPITAL MEDICAL SCHOOL.

(Received May 22nd, 1889.)

The causes which lead to the production of choreic symptoms are probably numerous, and the various theories which have been formulated to explain the causation of the disease may probably each have their application in different cases. In this communication the author is desirous of drawing attention to the disease solely when it occurs in pregnant women, and even then of illustrating, by two cases about to be recorded, only one pathological process by which the symptoms of the disease may be caused and by which they may reasonably be accounted for.

It would seem reasonable to consider chorea occurring in pregnancy by itself, since in all such cases there exists one common groundwork viz. an unstable condition of the nervous system—a condition always present in and forming an integral part of the gravid constitution.

Case 1. *Chorea during pregnancy; onset of acute mania; induction of labour; recovery.*—M. T—, aged 25, married, primipara, was admitted to St. Mary's Hospital under the care of Sir Edward Sieveking on April 4th, 1887, suffering from chorea.

Family history good, no trace of mental unsoundness; the patient has never had rheumatism nor any acute illness. Mrs. T— is said to have had a severe fright a few days before the onset of the first symptoms of chorea. The first appearances of the disease were noticed about four

weeks previous to admission; at that time she became "extremely nervous," felt very fatigued, and at the same time began to lose flesh; she found herself constantly dropping things when carrying them in her hands.

When admitted she had severe chorea mainly limited to the left side, she was mentally restless and much troubled with sleeplessness, her appetite was very poor and there was marked evidence of emaciation. Heart normal. Urine normal. Slight evidence of commencing phthisis in the apex of the left lung. The catamenia had been absent for five months, and pregnancy of a corresponding date was found to be present.

The patient was at first treated with bromide of ammonium and arsenic, but she became steadily worse; the chorea, which was at first limited to the left side, became general, her sleeplessness increased, her appetite failed yet further, and she was manifestly becoming more emaciated.

April 18th.—Thirty grains of bromide of ammonium with one fiftieth of a grain of hyoscyamine were administered three times a day. For a time this led to improvement of the general health, the patient eating and sleeping better, though the chorea remained as severe as ever.

May 3rd.—As the disease showed no signs of abating arsenic and iron were prescribed but without effecting any improvement. About this time the patient began to complain that the patients on the opposite side of the ward were always watching her and laughing at her; nothing availed to persuade her that she was mistaken. Gradually her restlessness and sleeplessness increased, the severity of the choreic movements became more intense, and great difficulty was experienced in getting her to take any food.

10th.—Patient's delusions have continued since last report. This morning she became very excited and began to shout wildly and continuously; constant watch had to be kept in order to prevent her getting out of bed and rushing out of the ward. Once she succeeded in escaping, and was only captured when half way down the male medical ward opposite. It was noticed that with the onset

of mental unsoundness a distinct change took place in the choreiform movements; violent muscular movements were constantly present, but these were the restless strugglings of ordinary delirium and not the purposeless jactitations of choreic origin.

Morphia gr. $\frac{1}{4}$ hypodermically only increased her excitement; hyoscyamine gr. $\frac{1}{15}$th injected under the skin soon quieted her and caused her to fall into a deep sleep. After a few hours she suddenly awoke and began to rave as wildly as ever, talking most excitedly, and struggling with such maniacal strength to get free that it required the united efforts of several persons to keep her in bed. During the night she was only kept quiet by the repeated administration of hyoscyamine subcutaneously.

The day following (May 11th) the maniacal condition was still more acute, and the temperature, which had hitherto been normal, rose to 102·8° Fahr.; the pulse became very frequent and feeble, and the patient refused to take food in any form. Although by repeated administration of hyoscyamine it was possible to keep the patient under control, yet it was evident that this drug was not exerting any curative influence, and it soon became clear that the patient must inevitably die of exhaustion unless further relief could be obtained. At 10 p.m. the patient's condition was so critical that Sir Edward Sieveking requested Dr. Montagu Handfield-Jones to see the patient with a view to the induction of labour.

For the above notes I am indebted to the courtesy of Mr. Caley, house physician to Sir Edward Sieveking.

When seen on May 11th at 11.45 p.m. the condition of the patient was as follows:—General condition that of acute mania; at times slight choreic movements were noticed affecting the face and upper limbs, the body was emaciated, the skin sallow, the pulse 140.

As the patient's excited state rendered all examination impossible, ether was administered, and a careful investigation of the abdomen and pelvis carried out. The ex-

istence of pregnancy advanced to the sixth month was clear, the cervix was small, the external os not patulous, and nothing abnormal could be noted. Signs of early phthisis existed at the apex of the left lung.

As the patient's condition was clearly becoming worse and any delay could only render the case more hopeless, it was decided to empty the uterus at once.

At 12.30 a.m. on May 12th, after a vaginal douche of carbolic lotion, dilatation with Hegar's dilators was commenced; the cervix proved extremely rigid and great difficulty was experienced in rendering the canal sufficiently patulous to admit the smallest size of Barnes's bags. The rigidity of the cervix rendering further advance almost impossible, the Barnes's bag was withdrawn, and the vagina having been syringed out, a soft catheter was passed between the membranes and the uterine wall and sustained *in situ* by plugging the vagina with antiseptic wool. Throughout the day the patient seemed somewhat quieter, but the mania and occasional choreiform movements were still well marked. Evening temp. 100·9° Fahr.

May 13th.—At 4 a.m. labour had commenced, the maniacal symptoms had almost disappeared, while the choreic movements were somewhat more marked. The temperature had risen to 102° Fahr.

At 8.45 a.m. a severe rigor commenced and lasted for half an hour, the temperature rising to 106·8° Fahr. At 10 a.m. the patient was quite rational, the choreic movements were less marked, and uterine contractions had commenced. At 2.15 p.m. the fœtus was born; it had apparently been dead some time and was highly offensive. After delivery of the placenta and membranes the uterus was washed out with carbolic lotion (1 in 100), and a mixture of quinine and ergot was prescribed; at 10 p.m. all choreic movements had ceased, the woman was perfectly rational and expressed herself as feeling comfortable, she took food exceedingly well and had a temperature of 100° Fahr. only. Next day (May 14th) the temperature fell to normal in the morning and remained there some hours, but later in

the day it rose to 103° Fahr and remained there till 10 a.m. on the 16th; on this last date the lochia became offensive and all the signs of puerperal septicæmia showed themselves. Under the influence, however, of intra-uterine douches, quinine, and Warburg's tincture these symptoms disappeared and a good recovery ensued.

During the height of the septic attack the beneficial influence of half-ounce doses of Warburg's tincture was very marked,—they invariably lowered the temperature and improved the condition of the pulse.

On May 19th the following note was made :—" Patient says she feels quite strong, and wants to go out. The choreic movements have slightly returned, especially in the face; they occur feebly at times in the hands and arms. The speech is slow and somewhat indistinct." Four days later appetite was good, flesh was being put on rapidly, and the patient was sent back to the medical side.

On June 8th the woman returned to her home perfectly free from chorea, in her usual mental condition, and improving daily in general health, in spite of the evidence of early phthisis in her left apex.

Case 2. *Chorea during pregnancy, delirium and delusions, paralysis, recovery.*—Mrs. L—, aged 19, admitted to St. Mary's Hospital November 13th, 1872, suffering with chorea. She is two months advanced in her first pregnancy. About six weeks ago she first noticed unsteadiness in her face, then her hands and shoulders became affected, then the legs. At present she has continual movements of her limbs and face, and is not free from jumps and starts in her sleep. Bowels regular; heart-sounds normal; rapid pulse; is losing flesh; appetite very poor; has never had rheumatic fever. Family history good.

November 15th.—Last evening from 7 to 9 p.m. patient was greatly excited and quite delirious, had delusions, and informed her mother that she had been dreadfully beaten and would not stay. Under the use of opiates and bromides this mental excitement became quieter, and by the 18th

she was again rational. Under the administration of stimulants, tonics, and generous diet the chorea rapidly disappeared, and by January 2nd, 1873, she was reported as well. Soon after this date she left the hospital, but almost immediately after one arm (left) became paralysed and remained so until her confinement. After delivery the paralysis rapidly disappeared, and on July 8th, 1873, mother and infant are reported to be thriving.

Disorders of the nervous system commonly arise in the course of pregnancy, especially in the earlier months, but it is certainly difficult to come across examples in which severe and varied manifestations of disordered nervous function are better illustrated than in the cases just recorded. The onset of acute mania in the first half of pregnancy is rare, still more rare in the disease associated with or exchanged for chorea. The variation or exchange of the channels by which nerve force was discharged, seems to constitute the real interest of this communication.

In pregnancy the nervous system is in a condition of exalted sensibility, its equilibrium is certainly unstable, and a slight shock may disturb its working balance. In Mrs. T—'s case a fright seems to have acted as an exciting cause, and soon afterwards evidence of disordered function was manifested in the motor areas; this persisted for over two months, and then, without any apparent reason, the choreiform movements (which pointed to the motor centres as the parts affected) gradually ceased, and *pari passu* the higher intellectual centres were attacked and exhibited signs of violent derangement of function. Soon after the onset of acute mania induction of labour was commenced; by this means the violent nerve-storm which shows itself in the phenomena of labour was established, and it is exceedingly interesting to note that with the onset of labour pains, both the mania and the remaining choreic movements abated, and soon entirely ceased; in other words the outflow of nervous energy had been diverted into a fresh channel. With the close of pregnancy the nervous system returned to its normal condition of more

or less stable equilibrium, and further evidences of disordered nerve-force ceased.

In the case of Mrs. L— chorea, complicated with delirium and delusions, was present, but yielded to treatment; here the motor and intellectual centres seem to have been affected at the same time. Later in the pregnancy a motor centre is again attacked, but this time "disordered function" is exchanged for "arrest of function." Both cases would seem to teach the same truth, viz. that during pregnancy chorea may arise independent of any organic lesion,—it is the working method of the centre which is affected and not the tissue structure. The chorea is in fact a deterioration of function, and may manifest itself by irregular muscular spasms, by mania and delusions, or by absolute paralysis.

Dr. John Phillips had seen many cases of severe chorea at the Evelina Hospital for Children. Two methods of treatment were usually adopted which had not been mentioned in the paper just read: the warm wet pack, which had as a rule a most marvellous effect in quieting the movements, and forcible feeding by Paley's bottle if much exhaustion from the disease was present. There seemed no reason why these methods should not be of some service when chorea is complicated by pregnancy.

Dr. Horrocks did not know what deterioration of function implied except deterioration of the part in action. He considered there must be some physical basis for the deterioration. The phenomena in chorea were neuro-muscular, but the pathology was obscure. Supposing the seat of lesion to be in the nerve-centres, these might show deterioration of function either by alteration in themselves or by alteration in the blood supply. It was his opinion that chorea was a blood disease in its origin. Its relation to rheumatism was well known, and in rheumatism there were undoubtedly blood changes; there were in many instances fibrinous tears on the valves of the heart, and some authors considered them to be the cause of the chorea through being washed up to the brain. In works on medicine, pregnancy was given as one of the causes of chorea, and in pregnancy the blood is certainly altered. Fright was a potent factor in the production of chorea as it was in the production of hystero-epilepsy, and he had known it produce genuine epilepsy in a girl where there was no hereditary predisposition.

Dr. Jamieson doubted if the theory of the preceding speaker

could be correct that chorea is a blood disease, as he knew of many cases due to fright, the symptoms coming on immediately after the shock, and he gave details of several cases following injuries in glass-works to pregnant women, and also of cases occurring in the wives of colliers whose husbands or relatives had been injured in colliery accidents. With regard to treatment he strongly advocated large doses of conium, and related a very severe case he had seen in consultation with Dr. Ricketts, of Southport, where the use of this remedy had been most marked in its immediate benefit after the trial and failure of arsenic, iron, and many other drugs.

Dr. Herman had been taught as a student that when chorea occurred in the adult female it was always either in a patient who had already suffered from it in childhood or who was pregnant. This fact pointed to a connection between pregnancy and chorea; and if pregnancy had anything to do with the production of chorea, one would expect the emptying of the uterus to be beneficial. He believed that in the majority of cases of chorea in pregnancy the induction of abortion or premature labour was followed by marked improvement. This did not occur in all; and we at present had no criteria by which to distinguish the cases that abortion or premature labour would benefit from those that it would not. Such criteria could only be ascertained by the comparison of carefully reported cases such as those contained in Dr. Handfield-Jones's valuable paper. He could not follow Dr. Handfield-Jones in his bold statement that there was no organic change. There might be no change that we as yet had the means of detecting, but he could not conceive that such symptoms could exist without some organic change. Such phrases as "exalted nerve sensibility," and the like, did not seem to him to convey any instruction; they were merely saying in other words that there was something the matter. He could not at all concur with Dr. Horrocks in thinking that chorea was "a blood disease." He thought it was a generally accepted law in pathology that the phenomena of all blood diseases were symmetrical. Chorea was usually a one-sided disease. How could a unilateral change be possibly due to a condition of the blood which circulated through both sides of the body?

Dr. Amand Routh related a case very like Dr. Handfield-Jones's first case, which was admitted into Charing Cross Hospital under Dr. Pollock in May, 1885. Three days before admission, the girl, aged 20, unmarried, suddenly developed choreic movements, and became delirious at night. On admission, there were violent bilateral choreic movements, dull intellect, indistinct articulation, but no pyrexia, albuminuria, cardiac disease, nor paralysis; there was no previous history of chorea, rheumatism, or fright. The movements were worse above the waist. Taking

food and sleep were alike impossible. She speedily became exhausted and lay in a typhoid state, but there was no cessation of the movements except under chloroform, all other drugs proving useless. At Dr. Pollock's request Dr. Routh saw the patient, and finding she was pregnant, determined to try the effect of Copeman's digital dilatation of the cervix, which had proved successful in a case of Dr. Makins' ('Obstet. Soc. Trans.,' 1880). In doing this Dr. Routh found the fœtus to be lying transversely *in utero* with no membranes intervening, so hooked down a knee and the fœtus came away in a few hours, a fatty placenta following. The fœtus was offensive, having evidently been dead some time. As soon as the uterus was emptied the choreic movements abated, and her mind gradually cleared. In spite of 1 per 1000 intra-uterine mercurial douches the temperature rose on first day to 101°, and on third day to 104·5°, but was normal on fourteenth day, and in six weeks she was discharged, being then free from all twitching, but still very stupid and dull. The form of puerperal insanity here was one of stupor and low delirium, coming and going *pari passu* with the chorea. He thought that the blood-theory of chorea causation as originally propounded by Trousseau, and alluded to to-night by Dr. Horrocks, was disproved by the fact that most cases of chorea in pregnancy occurred during the first three months, when the blood state was but little altered.

Dr. Matthews Duncan had recently seen a patient in whose two only pregnancies there was severe unilateral chorea, so exhausting as to demand induction of labour, in the second pregnancy. In the first, twins were born alive at the fifth month. In both attacks there was no anxiety except on account of weakness. No rise of temperature; no signs of cardiac or renal disease. Medicine did no good. Recovery after the premature delivery was rapid.

Dr. M. Handfield-Jones, in replying, pointed out that in his communication he had not attempted to discuss the possibility of chorea depending in some instances on blood conditions or on organic changes in the nervous structures; his cases were quoted solely to show that the chorea of pregnancy was sometimes an outward sign of deranged function of nervous centres, and existed quite apart from any appreciable pathological change in those tissues. He was quite prepared to admit that chorea was sometimes only one item in the rheumatic series, as Dr. Cheadle had pointed out in his recent Harveian Lectures, but it could hardly be shown that this point had any application to the cases now under consideration. If the chorea had depended on any lesion of tissue, the interchange between insanity of the muscles, delirium of the higher intellectual centres, and paralysis could hardly have taken place so rapidly.

OCTOBER 2ND, 1889.

ALFRED L. GALABIN, M.D., President, in the Chair.

Present—31 Fellows and 2 Visitors.

Books were presented by Dr. Minot, Dr. Oliver, Dr. B. S. Schultze, Mr. Lawson Tait, Dr. Tracon, the Council of University College, the American Gynecological Society, and the Smithsonian Institution.

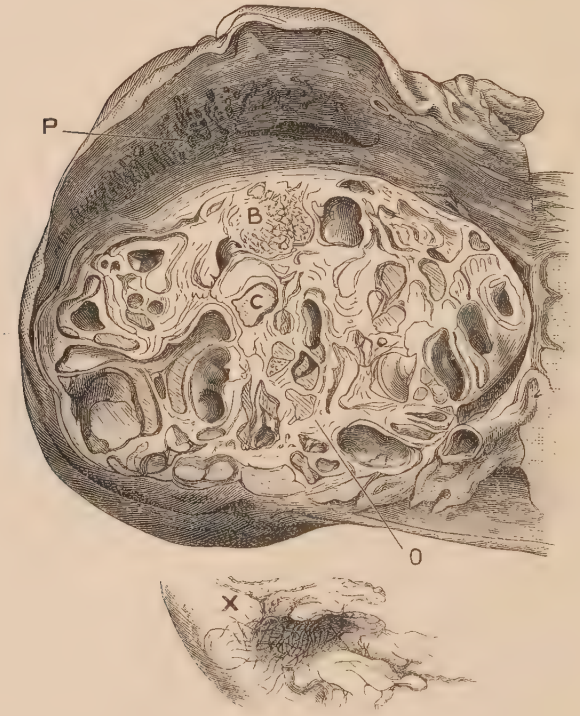
Francis R. B. Bisshopp, M.A., M.B.Cantab. (Tunbridge Wells); Frederick Henry Davies, M.B., C.M.Edin. (Tilbury); Charles John Harper, L.R.C.P.Lond. (Finchley); William H. C. Newnham, M.B.Cantab. (Bristol); and Richard Pinhorn, L.R.C.P.Lond. (Dover), were declared admitted Fellows of the Society.

The following gentlemen were proposed for election :— George Henry Burford, M.B., M.C.; Arthur Hardwick, M.D.Durh. (Newquay); James Oliver, M.D., F.R.S.Edin.; Harry Marmaduke Page, F.R.C.S. (Wimbledon); Thomas Edward Parsons, M.R.C.S. (Wimbledon); and Thomas Richmond, L.R.C.P.Ed. (Glasgow).

Report on Mr. Pollock's Specimen of Ovarian Dermoid from a Mare (Exhibited July, 1889).

THE ovary maintains its normal shape, and is enlarged about four times the natural size. It is oval in shape,

measuring four and a half inches in the major, and three and a half in the minor axis. A sagittal section shows the enlargement is confined to the oöphoron; paroöphoron is



An ovarian dermoid from a mare. One fourth the size of nature.

B. Bone.
C. Cartilage.
O. Oöphoron.
P. Paroöphoron.
X. A loculus containing black, coarse hair, like that of the mane or tail.

of normal size, though somewhat stretched by the growth. The oöphoron is composed of cystic spaces; the walls of the cyst are composed of hyaline cartilage. Some of the loculi

are composed of pigmented skin, three of them contain black hair of the consistence of the normal hair of the mane or tail. The hair on the body of the mare was of a dark chestnut colour. One cavity, much larger than the rest, lodged a tuft of coarse black hairs, many of which sprouted from the walls of the cyst, others were free. This particular cyst measured one inch in diameter. A few of the cavities were filled with sebaceous material unmixed with hair. Some large pieces of bone, with very dense cancellous tissue, invested with very thick periosteum, were lodged in the tumour, so that a saw was necessary in dividing it for examination. No teeth were detected. The general appearance of the ovary suggests the notion that as the ovary became cystic, the cyst walls became transformed into hyaline cartilage. The paroöphoron is free from the cystic growth.

Signed J. Bland Sutton.
C. Stewart Pollock.
Alban Doran.

SPECIMENS.

Dr. William Duncan showed—

(1) The uterus, rectum, and left kidney of a woman aged 52, who died of uræmia. There was complete occlusion of the cervical canal, the uterine cavity was distended with twenty-two ounces of pus; there was pus in the Fallopian tubes. The rectum showed extensive syphilitic ulceration. The kidney was the subject of pyelo-nephritis, and the left renal artery was thrombosed.

(2) Dermoid ovarian tumour removed from a patient aged 26.

(3) Simple ovarian cyst.

BLUE URINE. CYANURIA.

Shown by John Phillips, B.A., M.D.

The patient, aged 28, and recently married, had been under observation for six years, and during that period had had three attacks of passage of blue urine ; the first had been observed when in its decline, the second and third through their whole course, and the specimen shown was drawn by catheter during the last attack.

The first indication of the approach of the trouble was a greenish-brown-coloured urine, *when passed*, which deposited, on cooling, a similar-coloured precipitate; the colour deepened, and at the end of a week became bright cobalt blue, and then faded gradually again to a greenish-brown tint.

For the purpose of preservation, the specimen was boiled immediately on drawing it off, and the cork of the bottle covered by cotton wool. There was no possibility of deception being practised. Moreover, the patient was herself most anxious about her condition and was constantly under the surveillance of her mother. She was taking no drugs at the time of either attack, and there was no connection between their onset and the catamenial discharge.

An exhaustive examination by Mr. Stillingfleet Johnson proved the dry colouring matter to be probably an indigo, possibly produced by transformation of an unusually large quantity of Indican. Braconnet, who first described this condition, believed it to be a transformation of uric acid, less oxidized than urea.

Dr. Cleveland asked Dr. Phillips how long the attacks of cyanuria lasted.

Dr. Phillips replied a fortnight.

HÆMATOSALPINX AND INTRA-PERITONEAL HÆMATOCELE FROM RUPTURE OF A VARICOSE VEIN ON THE INNER SURFACE OF THE RIGHT FALLOPIAN TUBE.

By C. J. Cullingworth, M.D.

Dr. Cullingworth, in exhibiting the specimen, stated that it had been removed by abdominal section from a patient, aged 26, under his care at St. Thomas's Hospital. Five weeks before her admission she was suddenly seized, while walking in one of the parks, with severe faintness and loss of consciousness. She had not menstruated for ten weeks and believed herself to be pregnant. On reaching home she discovered that a slight hæmorrhage was taking place from the vagina. This continued up to her admission, at no time exceeding in quantity or differing in character from the ordinary menstrual flow. On admission there was discovered a considerable swelling behind and to the right of the uterus; the swelling in the middle gave the physical signs of a hæmatocele, that on the right of the uterus was smooth and rounded, and was diagnosed as a hæmatosalpinx. On opening the abdomen seven ounces of soft dark clot were found behind the uterus, encysted by recent peritoneal adhesions. The inner portion of the right Fallopian tube was of normal calibre; the outer inch-and-a-half was dilated and funnel-shaped, the dilatation being greatest at the fimbriated extremity, which was wide open. This dilated portion of the tube was filled with a firm dark clot, the clot hanging from the open end of the tube and being continuous with the intra-peritoneal effusion.

On the inner surface of the dilated tube was a circular opening, a third of an inch in diameter, with raised edges and lined with adherent blood-clot. On careful dissection this was found to be due to rupture of a varicose vein. There

was a second and somewhat similar, but smaller and older, opening on another part of the mucous lining of the tube, which, on dissection, was found to lead to a small cavity with blood-stained walls. No vessel could be traced communicating with this cavity. It was suggested that this might be of similar origin to the more recent lesion, the vein having become occluded, and that in all probability it bore the same relation to a retro-uterine hæmatocele for which the patient had been under treatment at St. Thomas's three years previously, as the more recently ruptured vein did to the present attack. The uterus was of normal size and empty. The clot was carefully examined for fœtal products, with negative results.

Dr. Amand Routh drew attention to the fact that this specimen showed clearly that intra-peritoneal hæmatocele may occur apart from rupture of an extra-uterine fœtation, which is denied by some recent writers on the latter subject.

AN ACEPHALOUS ACARDIAC MONSTER OF SIX MONTHS' GESTATION, WITH RUDIMENTARY HEART.

By Mr. Woodley Slyman for Mr. W. D. Slyman.

Mrs. A. B—, a Jewess, aged 33, a fine, well-grown woman, good looking, with black hair, and healthy. Former children well formed and healthy. This is her third gestation. Last menstruation January 5th, 1889. No miscarriages.

On July 4th, 1889, a slight sanguineous discharge, no pains, and she continued her duties as a shopkeeper.

On the 18th Mr. Slyman was sent for at 9.30 a.m. Scarcely any pains, and on vaginal examination the cavity was found distended with membranes containing fluid; the

os could not be reached, nor any presentation diagnosed. The uterus and contents were high up and normal in the abdomen.

At 11 a.m. the membranes ruptured, and copious discharge of liquor amnii (about three quarts) followed. On vaginal examination no presentation could be detected, but apparently a second bag of membranes.

At 1 p.m. fœtus No. 1 expelled, breech presentation with a funis remarkably small and about three inches in length.

1.15 p.m. a second fœtus was expelled, also breech presentation; hydrocephalic but otherwise normal.

A single placenta (not large), to which both cords were separately attached, was expelled after an interval of twenty minutes. No hæmorrhage and very few after-pains. The mother made a good recovery.

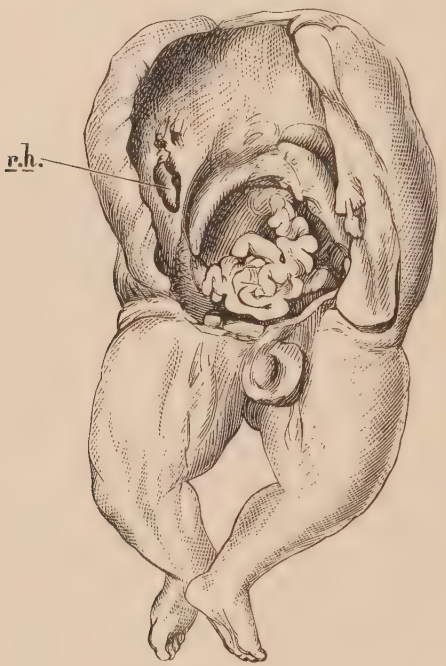
Description of fœtus.—Length seven inches. Like its twin, of the male sex. It was born at the sixth month. The skin over the whole body was smooth at birth, though it is now corrugated by action of the spirit, and has beneath it a layer of gelatinous connective tissue measuring half an inch in thickness. The connective tissue forms a thick pad over the thorax.

The monster has well-developed legs, except that the toes are only four in number on the left foot and two on the right. The upper extremities are absent, and do not seem to be represented by even a cartilaginous rudiment.

The umbilicus is well formed, and has projecting from it the remains of the umbilical cord. An inch above the umbilicus are two apertures placed symmetrically on either side, about a quarter of an inch from the middle line. That on the right side is small, and appears to end blindly, as a bristle can only be passed into it about one tenth of an inch. On the left side the aperture is larger, and contains a foliaceous mass of tissue.

The thorax is rudimentary, and consists of six or seven ribs on either side; there is no sternum, and there are no thoracic organs *in situ*.

The heart (*r. h.*) is situated in the gelatinous tissue forming the body wall and upon the right side. It lies in a cavity which is hollowed out of the tissue surrounding the organ, and consists of a solid mass which is roughly fashioned into the semblance of two rudimentary auricles and a single ventricle.



A small and bent canal leads from the upper part of the pericardial cavity into the surrounding tissue. It has no connection with the heart, though it appears to be a vascular channel, possibly representing the primitive aorta. A single delicate band of tissue traverses the pericardial sac. The intestine begins blindly, the blind extremity being attached by a ligament to the axis of the fœtus. The blind extremity appears to correspond with the duodenum.

The small intestine is well developed; there is a vermiform appendix and also a cæcum which is as usual situated on the right side. The large intestine is of usual length and terminates in an anus.

There is a large gland occupying the whole of the upper and back part of the thorax and abdomen, which has coming off from it two ureters, one from either side, and is therefore a fused kidney.

The testes are situated in the abdomen immediately above the internal abdominal ring. The bladder is present and terminates in the urachus. There is a well-developed penis and scrotum. The spleen is extremely small and lies above and to the left side of the kidney. There is no trace of the suprarenal bodies, liver, stomach, or pancreas.

Lying in a cleft in the median line of the kidney is an elongated and apparently solid gland which does not appear to have any duct. This gland is one inch long and lies in the long axis of the abdominal cavity.

The spinal column is well formed and terminates in a round extremity situated at the upper limit of the thorax. Its cavity encloses a cord enveloped in membranes. The intestines are filled with epithelial cells, fat, and a great many kreatin crystals.

The specimen is preserved in the Museum of St. Bartholomew's Hospital, Teratological Series, No. 3435 B.

Mr. Alban Doran was glad to find that Mr. Slyman had recorded both the circumstances attending the delivery of the monster, and also its anatomical characters, with such minuteness. Mr. Doran had given a demonstration of acardiac monsters in January. It was published in the current volume of the 'Transactions,' p. 4. Mr. Slyman's monster was an example of acardiacus anceps or paracephalus, and, as is the rule in that variety, a rudimentary heart was present. The cord of the monster was inserted into the placenta near the attachment of its brother's cord, and not into its brother's cord direct. Hence its circulation must have been carried on through anastomoses between its umbilical vessels and those of its brother in the placenta. This accounted for the relatively high degree of

development in the monster, especially as regarded its circulatory system.

He further maintained, contrary to the opinion of another speaker, that a monster of this class was still an acardiacus, although it had a rudimentary heart. A scientific term was a symbol, a means of denomination, and not a definition. The term "acardiacus" was applied to a certain class of monster which was always a twin, and always connected through its cord or umbilical vessels with the cord of a strong, generally well-formed embryo, the heart of which carried on the circulation in the monster. The fact that a rudimentary heart existed in the anceps or paracephalus variety was well known, and scientific authorities never hesitated to include that variety in the group of acardiac monsters.

DOUCHE CAN.

By John Shaw, M.D.

A CONTRIBUTION TO THE ANATOMY OF THE PELVIC FLOOR.

By G. Ernest Herman, M.B.Lond., F.R.C.P.,
OBSTETRIC PHYSICIAN TO THE LONDON HOSPITAL.

(Received June 25th, 1889.)

(*Abstract.*)

In this paper measurements are detailed which show the great normal variations in the conformation of the parts which form the floor of the pelvis. It is shown that the projection of the pelvic floor varies from none at all to as much as two inches, and that in healthy nulliparæ the distance between the coccyx and anus, the length of the perinæum, the distance between the fourchette and the symphysis pubis, and the length of the vagina, are subject to wide variations. It is pointed out that since these variations exist in healthy nulliparæ, peculiarities observed in parous women should not be assumed to be changes due to childbearing unless it has been ascertained that they were not present previous to pregnancy. The clinical importance of these anatomical variations, in their bearing on the liability to rupture of the perinæum and to prolapse, the adjustment of pessaries, and some forms of dyspareunia and sterility, is pointed out.

I have made a number of measurements in order to define more accurately the changes in the pelvic floor which are the initial stage of prolapse. Measurements of change imply a normal or standard condition, of which the change is an alteration. In this paper I propose to state what my measurements teach as to the normal or statical anatomy of the pelvic floor. In a subsequent communication I

shall put before the Society what they show as to its changes under increased pressure from above.

All the measurements summarised in this paper were made while the patient was at rest and recumbent in the left lateral position.

First, as to the *projection of the pelvic floor*. This means, using the words of Foster,* "the distance from the plane of the pelvic outlet to the most prominent part of the overlying soft parts." The only measurements to determine this with which I am acquainted are those of Schroeder and of Foster. Schroeder† measured from the coccyx to the pubes with callipers, thus getting the direct line, or the chord of the arc, and then measured with a tape over the soft parts. The average chord he found to be 8·72 cm.: the average measurement over the soft parts 13 cm. Foster, drawing a diagram from these measurements, and measuring the projection on this diagram, finds it amount to 4·1 cm. Foster* has measured in a more accurate way, with callipers specially constructed for the purpose. His estimate is 2 cm. He therefore thinks Schroeder's too high. Dickinson‡ gives the result of some measurements, he does not say how many, according to which it is 2·6 cm. and increased by tight corsets to 3·7 cm.

My measurements were made with the primary intention not of determining the actual projection, but of ascertaining the behaviour of the pelvic floor under strain; and for this purpose it was more important that different measurements in the same case should be made between the same points, than that they should be from identical points in different cases. Therefore I measured, not from the same point in every case, but from the point most easily identified in the particular case, and this point was often behind the coccyx. There was another reason for measuring from a point behind the coccyx, viz. the

* 'American Journal of Obstetrics,' vol. xiii, 1880, p. 36.

† 'Archiv für Gyn.,' Band ix, S. 80.

‡ 'New York Med. Journal,' 1887, vol. ii, p. 513.

fact that the tip of the coccyx sometimes descended during effort, and therefore that if this bone were used as a point for measurement, the full amount of descent might be prevented by the pressure of the end of the measuring tape on the coccyx.

For these reasons many of my measurements are from points a little above the plane of the outlet, and an estimate of the projection of the pelvic floor based on them errs by being a little too high. It is erroneous to a very slight extent, because owing to the sacro-coccygeal curve the lower end of the sacrum and the coccyx run so nearly in the plane of the pelvic outlet that often a point a good deal behind the tip of the coccyx is yet very little above the plane of the outlet. The projection which is obtained from my measurements is therefore (keeping as closely as possible to the words of Foster's definition) *the distance from the plane of the pelvic outlet, or one a little above it, to the most prominent part of the overlying soft parts.*

I have measurements of forty-seven cases, taken both directly, with callipers, between the points measured from, and also over, the soft parts, with a tape. The average distance from the lower part of the symphysis pubis to the point of the sacrum or coccyx from which the measurement was taken is 10·66 cm. The average distance over the convexity of the soft parts is 13·3 cm. I have made a diagram from these figures, as Foster has done from Schroeder's, and find the projection to be calculated about 3·2 cm.* But, as I have said, this is erroneous in

* This method of obtaining the projection, by drawing a diagram of the chord, the arc, and the perpendicular, and measuring, is a very rough one. But it is not certain that the curve of the pelvic floor is a segment of a circle: the measurements of the chord and the arc cannot be made with mathematical accuracy; and such accuracy is not at all necessary. It requires a long and intricate calculation to find the length of the perpendicular, the chord and the arc being given. The formula for calculating it (for which I am indebted to Mr. R. A. Herman, M.A.) is A = chord; B = arc; D = perpendicular; then $D = \frac{1}{4}\sqrt{6\,B\,(B-A)}\left(1-\frac{7}{20}\frac{B-A}{B}\right)$.

In the case given this would give a result (supposing the curve to be the segment of a circle) correct to within ·001.

making the projection appear too great. I am therefore inclined to agree with Foster in thinking Schroeder's measurements exceptional, and the estimate of the projection based on them too high.

But a close examination of the figures shows that the construction of averages, however rough, is of little use as a representation of what is normal, because individual cases differ so widely from one another. Just as in different people there are differences in the conformation of the nose, the ears, the hands, the feet, &c., so are there in the construction of the pelvic floor.

Thus in one case there was no projection at all, the soft parts running in a straight line from one bony point to another, the measurement with callipers being the same as that taken with a tape over the soft parts. In another the direct measurement with callipers was 13·4 cm., and that over the soft parts 18·1 cm., a proportion of 1 to 1·35, giving a projection of about 5·4 cm. It may be that in this case the apparently high projection was due to the measurement being taken at a point above the pelvic outlet. But in another the direct measurement with callipers was 9·5 cm. (one which cannot have been much above the pelvic outlet), and that over the soft parts 14·7 cm., a proportion of 1 to 1·55. These measurements give roughly a projection (calculated) of 4·65 cm.

The general conclusion to which I come is that while Foster's result probably nearly represents the average, yet there are very wide differences between different cases, ranging from no projection at all to a projection of two inches or more. One of the conditions on which these differences depend is the amount of fat present. A slight projection is seen in thin subjects.

Foster* has taken the trouble to measure the perinæum in 133 cases, sixty-five nulliparous, sixty-eight parous women. The length of the perinæum in parous women, being modified by the greater or less extent of laceration during delivery, does not show what can be considered a normal state of things. Foster found the average length

* Op. cit.

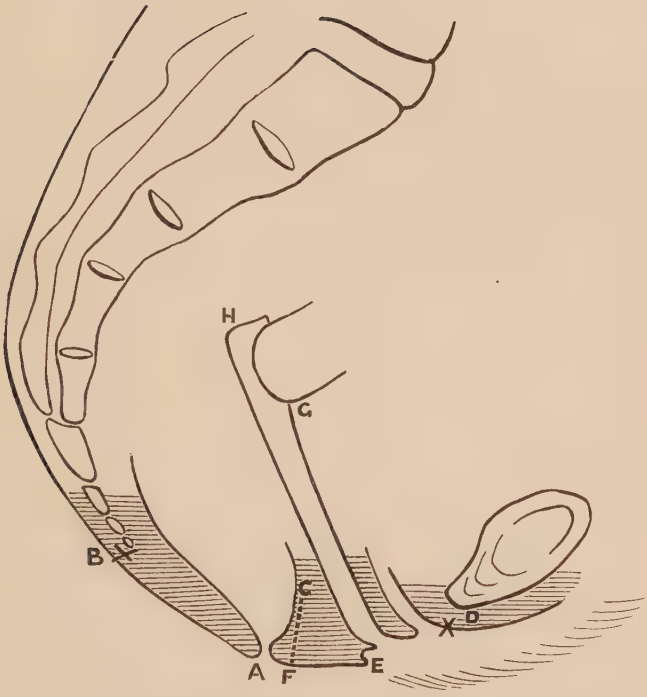


FIG. 1.—Diagram showing average arrangement of parts forming pelvic floor.

Measurements.

		cm.			cm.
B D.	Along curve of soft parts	9·8	E D.	Anterior opening	2·4
C F.	Pelvic floor projection	2	E H.	Posterior vaginal wall	9·4
B A.	Coccyx to anus	4·5	E G.	Anterior „	7·1
A E.	Perinæum	2·9			

of perinæum in sixty-five nulliparæ to be 2·7 cm., the longest being 4·6, the shortest 1·6 cm. I find the average of twenty-seven nulliparæ to be 3·7 cm., the longest being 5·5 cm., the next longest 5·1 cm., the shortest 2·4 cm. In sixty-eight parous women Foster found the average length to be 2·5 cm., the longest being 4·4 cm., the shortest 1·2 cm. In thirty-eight parous women (cases of rupture into rectum being excluded) I found the average length was 2·6 cm., the longest being 4·7 cm., the shortest 1·5 cm.

'Quain's Anatomy'* gives the length of the perinæum as about an inch. Hart and Barbour† give the antero-posterior measurement of the perinæum as three quarters of an inch. Barnes‡ gives it as "an inch or more." Spiegelberg§ says it rarely measures more than 3 cm. Leishman‖ puts it as "usually an inch and a half." Cazeaux¶ says "scarcely an inch to an inch and a half."

The measurements here adduced show that the perinæum is subject to variations, like other parts of the body, and that its length varies from five eighths of an inch to two inches, the average being about an inch and an eighth. They also show that the diminution in length produced by the unavoidable injury in labour is, as a rule, very slight.

Foster has measured in a number of cases the distance between the coccyx and the anus. He finds 4·5 cm. as the standard distance from the tip of the coccyx to the anus in the well-formed adult nullipara, and 4·7 cm. in women who have born children. Most of my measurements, for the reason already given, do not afford information on this point. I have measured seven to compare with Foster; four nulliparæ, in whom it averaged 5·4, three parous, in whom it averaged 4·5. It varied from 6·75 to 2·5.

To complete the picture of the parts closing in the pelvis

* Ninth edition, p. 699.

† 'Manual of Gynæcology,' 3rd edition, p. 38.

‡ 'Diseases of Women,' 1st edition, p. 53.

§ 'Midwifery,' N. S. S. Trans., p. 25.

‖ 'Midwifery,' 3rd edition, p. 40.

¶ 'Midwifery,' trans. by Bullock, p. 67.

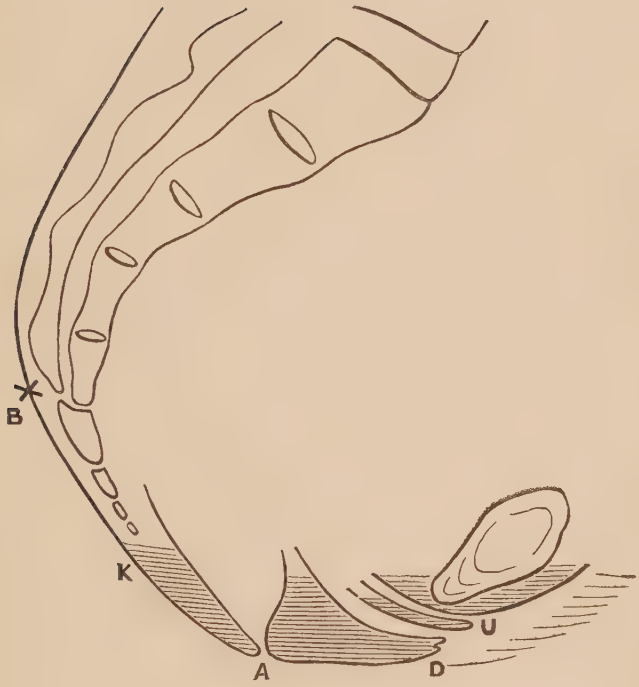


FIG. 2.—Diagram to show one extreme of normal variation in arrangement of parts forming pelvic floor. Drawn to scale from measurements in a patient, unmarried, æt. 24.

Measurements.

	cm.		cm.
D. Coccyx to pubes direct	8	B A. Point on sacrum to anus	9·8
D. Point on sacrum to pubes, direct	12	A D. Perinæum	4·7
D. Point on sacrum to pubes, over soft parts	14·5	Anterior opening	0
Projection	2·5	U. Meatus urinarius 1·3 cm. in front of posterior border of symphysis pubis.	

below, we want similar precision as to the distance between the fourchette and the symphysis pubis, or what I may call the anterior opening of the pelvic floor. Foster's measurements do not help us to estimate this. I find that in thirty-six nullipara this distance averaged 2·19 cm., in seventy-four parous women 2·9 cm. This difference between the parous and the nulliparous is clearly due to shortening of the perinæum from injury during childbirth. The average recession of the fourchette from the pubes due to childbirth is, according to these measurements, about ·7 cm. The average shortening of the perinæum from child-bearing, according to my measurements and Foster's, is about ·41 cm., so that shortening from laceration does not entirely explain this recession. Foster found that in parous women the distance from coccyx to anus was on the average lengthened by about ·2 cm. This lengthening is probably due to a small amount of the stretching which the part undergoes during labour remaining permanently. The stretching during labour is not only in the antero-posterior direction, but also transversely. If we assume some of this transverse stretching to permanently remain, it will account for the recession of the fourchette from the symphysis pubis. The differences which call for this explanation are very slight, and it is possible that they may be fortuitous, but the explanation is so probable that I think they are real, and produced in the manner suggested.

But the differences in the size of this anterior opening in different cases are quite as great as those in the length of the perinæum and the projection of the pelvic floor. In some cases the fourchette was so close to the pubic arch that the measurements from sacrum to fourchette and from sacrum to pubic arch were identical; and in others the distance from fourchette to pubic arch was 1, 1·1, 1·2, and 13 c.m. On the other hand, in one nulliparous woman the fourchette was 5·5 cm. from the pubic arch. This, as might be expected, was associated with shortness of the perinæum, which here only measured 2·4 cm.

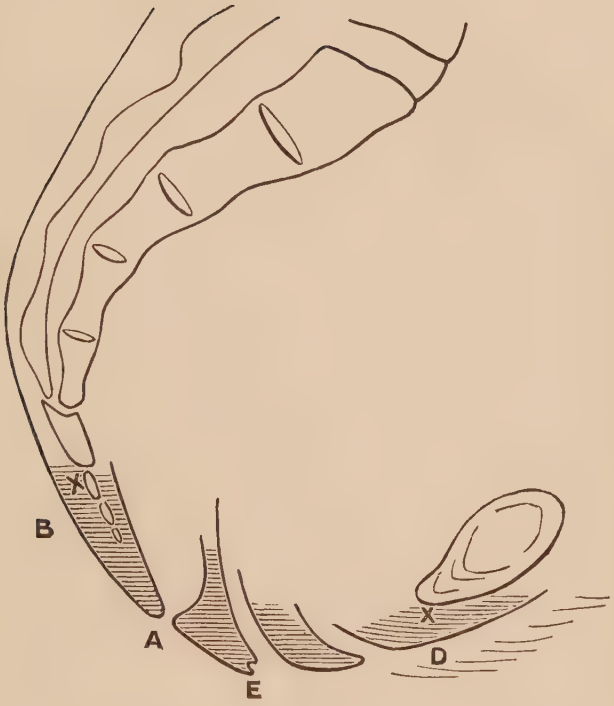


FIG. 3.—Diagram to show another extreme of normal variation in parts forming pelvic floor. Drawn to scale from measurements in a patient, unmarried, æt. 23.

Measurements.

	cm.		cm.
B D. Point on coccyx to pubes, direct	9·5	B A. Point on coccyx to anus	4·5
B D. Point on coccyx to pubes, over soft parts	12·3	A E. Perinæum	2·4
		E D. Anterior opening	5·4

Putting together the averages of nulliparæ, we get the following as the average construction of the pelvic floor: Coccyx to anus (Foster), 4·5 cm.; perinæum (Foster and Herman), 2·9; anterior aperture (Herman), 2·4 (Fig. 1).

But taking extreme measurements we get the following contrasted conditions: Coccyx to anus (Foster), 3 cm.; perinæum (Foster), 1·6; anterior aperture (Herman), 5·5. Opposed to this is the following: Coccyx to anus (Foster), 6·1; perinæum (Herman), 4·5; anterior opening (Herman), 0 (Figs. 2 and 3 are diagrams taken from measurements of actual cases showing these contrasted conditions).

I think these differences have some clinical importance, although I cannot at present adduce measurements in exact demonstration.

1. We find in practice that the amount of difficulty in finding a vaginal pessary of a shape which can be retained and will support the uterus varies very much. In some cases almost any kind of pessary will remain in the vagina without pressing injuriously. In others most pessaries slip out. I believe that the difference between the two kinds of cases here alluded to somewhat depends upon the conformation of the pelvic floor. The further forward the perinæum extends, and the more nearly the axis of the vagina approaches the horizontal, the more easily will it retain a pessary.*

2. Various changes have been described as due to injuries of the pelvic floor produced in childbirth. The wide differences in the conformation of the parts forming the floor of the pelvis which these measurements demonstrate to exist, make it evident that no inferences as to the connection of a particular conformation of the pelvic floor with a special parturient injury should be accepted unless the patient has been examined before as well as after parturition.

* In the 'Lancet,' 1888, vol. i, p. 895, is a notice of a paper by Dr. Rafael Weiss, summarizing measurements made by him on coloured women. I have not been able to read the original.

3. Barnes mentions as a cause of dyspareunia in his experience* that "the pubic arch was unusually deep, and continued so far back that the vulvar fissure was carried far behind the normal seat." It is not clear what the precise change was which these words are intended to indicate; but looking from this point of view at the measurements I have submitted, it will be clear that the closeness with which the posterior segment of the pelvic floor approaches the symphysis pubis must affect the greater or less difficulty with which coition is accomplished. I think it is also one of the conditions which has to do with the phenomenon known as "profluvium seminis."

4. It is also probable that the liability to rupture of the perinæum in delivery, and especially to the form known as central rupture of the perinæum, may vary with the distance forward to which the fourchette extends.

I have measured also the length of the vagina. This was done by pushing a spatula as far as it would go into the anterior and posterior vaginal cul-de-sacs respectively. Then, having allowed the elastic recoil of the parts to push the spatula back as much as it would, the distance to which the spatula entered was measured by applying the back of the last phalanx of the thumb to the perinæum, and the thumb-nail to the spatula. In this way the distance from the vulval orifice to the vaginal cul-de-sac was obtained.

In seventy-three parous women the average length of the anterior vaginal wall was 7·5 cm., that of the posterior 9·8 cm. The longest vagina measured 10·8 cm. along the anterior wall, 14 cm. along the posterior. The shortest was 5·2 cm. along the anterior, 7 cm. along the posterior wall. In thirty-two nulliparæ the average length of the anterior wall was 7 cm., of the posterior 9·4 cm. The longest measured 9·5 cm. along the anterior wall, 12·1 cm. along the posterior. The shortest was 5·3 cm. along the anterior wall, and 8 cm. along the posterior.

* 'Diseases of Women,' 1st edition, p. 104.

It thus appears that pregnancy produces on the average a slight increase in the length of the vagina; in other words, that a slight degree of subinvolution of the vagina, as well as of the uterus, is common.

Different authors give different figures for the length of the vagina. Thus, according to Spiegelberg, the anterior vaginal wall is 5 to 5·5 cm.; posterior, 7 cm. Hart and Barbour, anterior, 5; posterior, 7·5. Leishman, anterior, 4 inches; posterior, 5 to 6 inches. Sappey (quoted by Courty), anterior, 7·5 cm.; posterior, 9·5 cm.

Measurement of the vagina has some practical utility. I find that, as a general rule, the size of a ring pessary which will suit a patient is one having a greatest diameter one inch shorter than the posterior vaginal wall. This rule does not universally hold good, but it does of most cases. No such rule can be devised for any pessary that is variable in shape, for in such the shape given to them modifies the extent to which they stretch the vagina. Those who are practised in the use of pessaries can generally judge pretty correctly without measuring, but persons inexperienced in the use of pessaries may find the rule I have given useful.

The chief worth of the measurements summarized in this contribution is that they may help to make current representations of the anatomy of the parts more correct, by showing the variations in the construction of the pelvic floor in different subjects. There is no part of the body in which we find absolute uniformity in all subjects. The uterus, for instance, may be straight or anteflexed, and it may be nearer one side of the pelvis than the other. The measurements here given show that the vagina varies in length, the perinæum varies in length, the distance of the anus from the coccyx varies, the closeness with which the fourchette approaches the pubic arch varies. The usual limits of these variations are here defined more exactly than has been done before.

Table of Measurements.

	Maximum.	Minimum.	Average.
Projection of pelvic floor ...	... 5·4	0	less than 3·2 cm.
Perinæum (nulliparæ) ...	... 5·5	2·4	3·7 cm.
„ (paræ) ...	... 4·7	1·5	2·6 „
Coccyx to anus	... 6·75	2·5	4·5 „
Fourchette to pubic arch (nulliparæ)	... 5·5	0	2·19 „
„ „ (paræ)	... 6·4	·2	2·9 „
Anterior vaginal wall (nulliparæ)	... 9·5	5·3	7 „
„ „ (paræ)	... 10·8	5·2	7·5 „
Posterior „ (nulliparæ)	... 12·1	8	9·4 „
„ „ (paræ) ...	... 14	7	9·8 „

Schultze, in his work on 'Uterine Displacements' (tr. by Macan, p. 37), gives measurements of 30 cases, 15 pregnant, 15 not, made to determine the difference between the direct measurement and that taken over the soft parts. He has not estimated the projection. His measurements are not strictly comparable to mine, for he measured from the extremity of the coccyx to the preputium clitoridis—a point more variable and less definite than the lower border of the symphysis. He gives the average of his measurements, but no account of the variations. The average distance from coccyx to anus he finds 5·9 cm., average length of perinæum 3·8 cm. I regret that I have omitted mention of this in the proper place.

ON THE CHANGES IN THE PELVIC FLOOR WHICH ACCOMPANY THE SLIGHTER DEGREES OF PROLAPSE.

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(Received June 25th, 1889.)

(*Abstract.*)

The author describes the descent of the pelvic floor which takes place during effort in health, and is morbidly increased in prolapse. Measurements are given which show that this descent in health probably does not exceed three quarters of an inch. This descent takes place partly by stretching of the sacral segment of the pelvic floor in an antero-posterior direction, and partly by its recession downwards and backwards from the symphysis pubis, a movement which implies transverse stretching. In the antero-posterior stretching, the perinæum and the part posterior to the anus take part to about the same proportionate extent. This normal descent of the pelvic floor is accompanied with descent of the uterus into the vagina to the extent of about five eighths of an inch. These changes may be morbidly increased, and their relative extent morbidly altered. The descent of the pelvic floor may exceed two inches. This morbid increase of descent of the pelvic floor may be present without increased descent of the uterus into the vagina. In other cases it may be accompanied with descent and protrusion of the anterior segment of the pelvic floor, with or without the uterus. In such cases, when a protrusion at the vaginal orifice has taken place, further effort increases this protrusion, but does not increase the descent of the sacral segment of the pelvic floor. Backward displacement of the uterus is often present without more descent

of the uterus or of the pelvic floor than is present in most healthy women; but in most cases of backward displacement of the uterus the descent of the uterus and pelvic floor is increased. Backward displacement of the uterus is not associated with shortness of the vagina.

Although the symptoms of descent are usually relieved by suitable mechanical support, yet the amount of descent of the uterus or of the pelvic floor is not the measure of the severity of the symptoms. There may be symptoms with slight descent in some patients; much descent without symptoms in others; and in the same patient the symptoms may be present at one time and absent at another, although the amount of descent has not varied; showing that the symptoms are conditioned more by the state of the nervous system than by the local mechanical changes.

The well-marked changes of the larger degrees of prolapse and procidentia have been often described, and are familiar to the profession.

The differences of opinion which exist about the pathological importance of versions and flexions of the uterus centre a good deal round the questions whether these so-called displacements are frequently associated with descent or not. Some think that they are almost always associated with descent, and that the descent is the cause of the symptoms; others, that the versions and flexions often cause symptoms without descent. The descent in the cases about which there is dispute is admittedly slight, and because it is slight there are two opinions about its existence.

There is a certain amount of descent which is physiological. With respiration there is a slight regular ascent and descent of the pelvic floor, and during muscular effort a more considerable descent. The amount of this descent is different in different persons, and I think probably also in the same person at different times. Prolapse is the condition in which this physiological yielding is increased. The changes usually produced under great increase of the intra-abdominal pressure are in this condition brought

about by only slight increase of pressure; and great increase of pressure produces further changes which do not occur in a normal state of things.

Disputed questions about the frequency of pathological descent can only be settled by measurement of the amount of descent in different cases, and by ascertaining what is the amount of descent which normally takes place.

It is the object of the present paper to describe more exactly than has been hitherto done the slighter degrees of descent, and to show how they may be measured and recorded. I prefer to speak of the "slighter degrees" rather than of the "beginnings" of prolapse; because to speak of the "beginning" implies that the process is a progressive one, and with the slighter degrees of prolapse this is not always the case.

It has been recognised by some, but not with equal clearness by all, that there is no such thing as descent of the uterus by itself. Descent of the uterus implies change in other parts of the pelvic floor. Sometimes the pelvic floor descends without much change in the relation of its component parts to one another. In other cases the uterus or the bladder is the part which first and most descends.

The present paper is based upon measurements made in order to ascertain the amount of these changes with greater precision than has been done before. The cases which I first selected for this investigation were such as came for treatment on account of symptoms such as go with prolapse. I afterwards included other cases in which no symptoms of that kind were present, and some in which there were no symptoms at all referable to the pelvic organs. The cases averaged do not include any in which the uterus was outside the vulva. The measurements were made while the patient was lying on her side. The distances between the different points were first measured without any special instructions being given to the patient. Then she was told to bear down as much as she could, and then, at the height of this effort, the distances between these points were again measured.

It is not pretended that these measurements are more than approximately correct. The parts measured are not bounded by such definite lines that small differences can be much insisted on. The amount of alteration produced by straining depends on the vigour of the effort; and this depends not only upon the patient's will, but also on her nervous and muscular tone at the time. The increase in the intra-abdominal pressure which the patient can produce by straining while lying on the side, without the reflex stimulus of a body calling for expulsion, can seldom if ever be so great as that produced during strong effort in the erect posture. Therefore I do not regard the increase in the pelvic floor projection which my measurements show as representing the maximum which takes place. But this consideration does not invalidate conclusions drawn from the comparison of different cases measured in the same way. In some few cases, either from the patient's not understanding what she was asked to do, or from timidity, or from weakness, she could not be got to strain enough to make any alteration in the measurements. These cases are not included in the averages which follow. Although perfect accuracy in the measurement of these changes is impossible, yet a description expressed in figures, and checked by as close measurement as possible, gives a clearer and more nearly correct picture than can be obtained in any other way.

I shall first speak of the cases collectively, and then of the differences between different classes of cases.

The average increase, under strain, in the measurement of the pelvic floor over the soft parts, from a point low down on the sacrum, or on the coccyx, to the symphysis pubis, in 110 cases, was 3·04 cm. This increased projection of the pelvic floor takes place in two ways: (1) there is stretching of the posterior segment of the pelvic floor (from coccyx to fourchette) in the antero-posterior direction; (2) there is movement of the posterior segment of the pelvic floor backwards and downwards. This movement can only take place by stretching of the

posterior segment from side to side. It enlarges the anterior opening of the pelvic floor, and makes room for, or rather is produced by, a downward movement of the anterior segment of the pelvic floor. The behaviour of the posterior segment of the pelvic floor is just like what takes place in labour, but to a less extent, and with the difference that instead of being pushed down by the fœtal head, it is pushed down by the anterior segment, which in labour is pulled up to make way for the child.

In 103 cases I have records of the relative extent to which each of these changes took place. The average amount of stretching in the antero-posterior direction was 1·62 cm.; the average amount of movement downwards and backwards of its anterior edge was 1·45 cm. The amount of stretching in each direction, antero-posteriorly and transversely, seems therefore to be nearly equal, but the antero-posterior stretching rather greater.

The degree to which the increased projection of the pelvic floor takes place respectively by antero-posterior stretching, and by movement downwards and backwards, seems to depend a little upon how far this segment extends forwards. In the communication which preceded this I have shown the wide differences that there are between different subjects in this respect. The further forward the posterior segment extends, the closer it comes to the pubes; and therefore the smaller the anterior opening, the greater is the relative extent of its movement downwards and backwards away from the pubes, enlarging the anterior opening, and the less relatively is the antero-posterior stretching. Thus in sixteen nulliparæ in whom the antero-posterior stretching exceeded the movement backward and downwards, the average distance from the fourchette to the pubic arch was 2·44 cm., and the average length of perinæum 3·35 cm. In nine in whom the amount of movement backwards and downwards exceeded that of antero-posterior stretching, the average distance from fourchette to pubes was 2·01 cm., and the average length of perinæum 4·17 cm. The difference in

the parous women is less marked, but is in the same direction. In thirty-seven parous women in whom the antero-posterior stretching was the greater, the average distance from fourchette to pubes was 3·06 cm., and average length of perinæum 2·44 cm. In 29 in whom the movement backwards and downwards was the greater, the average distance from fourchette to pubes was 2·66 cm., the average length of perinæum 2·88 cm.

But in this matter, while the differences between averages are slight, the differences between individual cases are very wide. Thus in one case, a parous woman, the antero-posterior stretching amounted to 4 cm., and the movement backwards and downwards to only ·5 cm.; the distance from fourchette to pubes here was 4 cm. In another case, a nullipara, there was no stretching in the antero-posterior direction, but a movement downwards and backwards of 2·5 cm.; the distance from fourchette to pubes here was 2·9 cm.

In the stretching of the posterior segment of the pelvic floor, both the perinæum and the part lying between the anus and sacrum take part, and that to about the same extent. The average elongation of the whole posterior segment by stretching was in the proportion of 1 to 1·2. The elongation of the part behind the anus was as 1 to 1·21, the elongation of the perinæum as 1 to 1·18. The average amounts of elongation were—sacro-anal part 1·13 cm., perinæum ·52 cm. The average length of the posterior segment as measured was 8·16 cm., the sacro-anal part averaging 5·34 cm., the perinæum 2·82 cm. On straining this was increased to 9·81 cm.—the sacro-anal part stretching to, on the average, 6·47 cm., the perinæum to 3·4 cm.

During effort, with this descent of the pelvic floor there goes descent of the uterus and shortening of the vagina. This descent of the uterus takes place partly by the upper part of the vagina becoming inverted into the part next below it, and partly by the vaginal rugæ being pressed together, *i. e.* by increased wrinkling and actual shortening

of the mucous tract. In many women there occurs slight inversion of the lower part of the vagina, which thus protrudes slightly when the patient strains; but this is not usual in the nullipara. But the fact of shortening of the distance from the vulva to the vaginal fornices is the only one appreciable by measurement.

In the preceding paper I have described the method by which I have measured the vagina. I have measured it first during rest and then during effort in ninety-six cases. The average descent during straining of the anterior vaginal cul-de-sac was 2·3 cm., that of the posterior cul-de-sac 2·03 cm. There is here a considerable difference between the parous and the nulliparous. In seventy-five parous women the average descent of the anterior vaginal cul-de-sac was 2·62 cm., and of the posterior 2·28 cm. In twenty-one nulliparæ the average descent of the anterior cul-de-sac was 1·15 cm., that of the posterior 1·3 cm. The difference is that in the parous the amount of inversion is greater, and also that while in nulliparæ the posterior cul-de-sac was more shortened during straining than the anterior, in the parous the anterior was more shortened than the posterior. This is in accordance with what we might expect. We know that the uterus as it descends moves in the axis of the pelvis—that is, roughly speaking, in a curve having a centre in or near the symphysis pubis; and it is obvious that by a movement of this kind (assuming the parts to be in a healthy condition, and altered only by the movement of the uterus) the posterior cul-de-sac would be more shortened than the anterior. This is what the measurements show takes place in the nullipara.

On the other hand, we know that prolapse is more frequent among the parous, and that in prolapse the anterior vaginal wall is the part which most commonly comes down first. This is a sufficient explanation of the greater inversion of the anterior vaginal wall among the parous, for among the cases measured there were a considerable number of slight prolapse.

The foregoing averages are based upon the cases taken

collectively. I now come to consider them more in detail.

In seventy-two cases there were symptoms of prolapse (backache, bearing-down pain, &c., relieved by lying down). In these the average increase in the measurement over the soft parts when the patient strained was 3·54 cm. In thirty-four patients, who came for treatment for ailments *not* attended with symptoms of this kind, the average increase was 1·93 cm. In these latter the increase took place more by movement backwards and downwards than by antero-posterior stretching. The average extent of movement backward and downward was 1·17 cm., the average antero-posterior stretching was ·8 cm. The average descent of the anterior vaginal cul-de-sac was 1·45 cm.; of the posterior, 1·37. The degrees of change indicated by these figures may, therefore, be taken as normal, as consistent with health and comfort, not requiring treatment. Fig. 1 is a drawing from the measurements in a patient of this class.

Dickinson* has also measured the increase on straining. He does not say in what class of patients, or in how many. The increase of projection he found 1·4 cm., but in women wearing light corsets, in whom the initial projection while at rest was more, it was ·6 cm.

Looking more in detail at the cases described in the foregoing paragraph under the broad term of prolapse, I find twenty-three in which, although there were symptoms of prolapse, viz. backache, dragging, bearing-down pain, &c., relieved by lying down, also relieved in some cases by a pessary, in others by a support to the perinæum, yet there was no displacement of the uterus backwards, no protrusion at the vulva, and no greater descent of the uterus into the vagina than was present in some of those who made no complaint. In these the average elongation of the pelvic floor was 5·1 cm., the antero-posterior stretching was 2·23, the movement backwards and downwards averaged 2·16 cm. The average descent of the anterior vaginal

* 'New York Med. Journal,' vol. ii, 1887, p. 513.

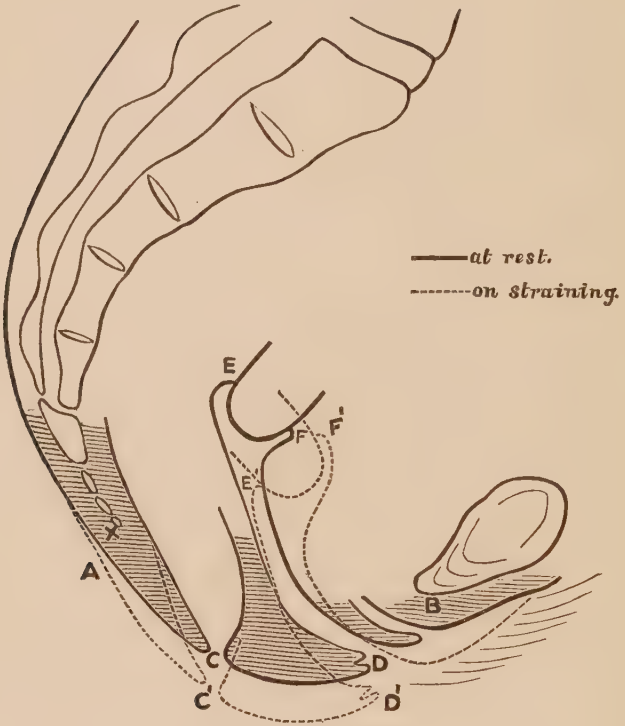

FIG. 1.—Drawn to scale from measurements in a nullipara, æt. 19, subject of small ovarian tumour. Showing normal descent of pelvic floor, descent of uterus, and shortening of vagina under strain. Changes in the axis and shape of the vagina are not represented because not measured, either in this or following diagrams.

Measurements.

	cm.		cm.
A B. Direct	7·8	C′ D′. On straining . . .	5
A B. Over soft parts . .	11	D E. At rest	8·6
A B. „ „ on straining	12·5	D′ E′. On straining . . .	6·6
A C. At rest	4	D F. At rest	7·6
A C′. On straining . . .	4·5	D′ F′. On straining . . .	6·5
C D. At rest	4·2		

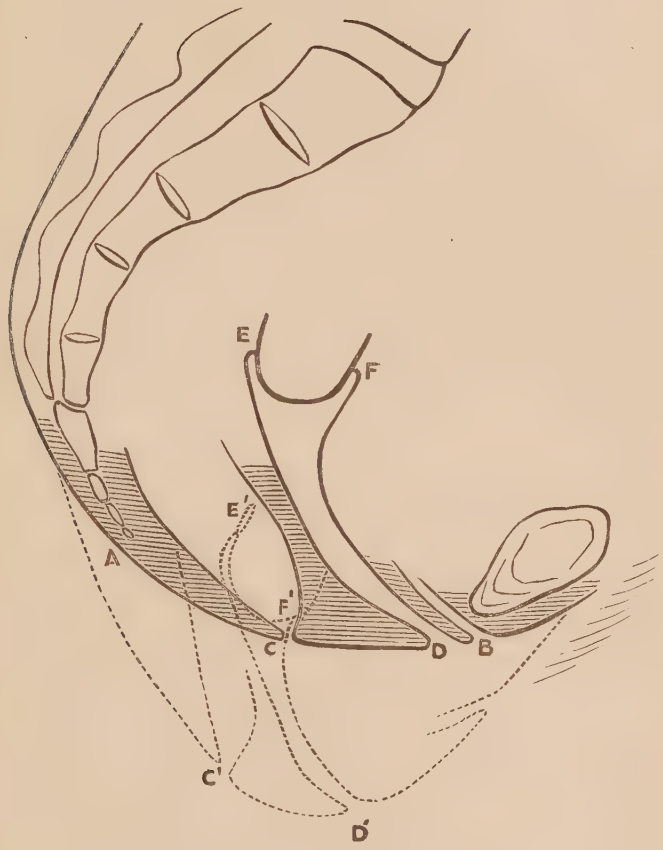

FIG. 2.—Showing prolapse of pelvic floor without relative displacement of uterus. Drawn to scale from measurements. Æt. 37. 6-para. Relieved by perinæal support.

Measurements.

	cm.		cm.
A B. At rest	9·5	C′ D′. On straining . . .	3·6
A B. On straining . . .	17·8	D E. At rest	8·9
A C. At rest	5·2	D′ E′. On straining . . .	8·3
A C′. On straining . . .	6·5	D F. At rest	7·6
C D. At rest	3·6	D′ F′. On straining . . .	5·8

cul-de-sac was 3·5 cm., of the posterior 3·11. In some of these there was descent of the pelvic floor with less than usual shortening of the vagina. Thus in one, a patient aged 28, who had had two children, the elongation of the pelvic floor was 3·9 cm., made up of antero-posterior stretching 2·4 cm., and movement backward and downward 1·5 cm., with descent of anterior vaginal fornix amounting to 1 cm.; of posterior, 1·8 cm. This patient was relieved by a perinæal support. In another, aged thirty-seven, mother of six children, the elongation of the pelvic floor was as much as 8·3 cm., made up of antero-posterior stretching 1·4 cm., and movement backwards 6·9 cm. The descent of the anterior vaginal fornix was 1·8 cm., and that of the posterior ·6 cm. A perinæal support gave relief. Fig. 2 is a drawing from the measurements in this case.

I have published a clinical description of this class of cases in the 'British Medical Journal,' 1884, vol. ii, p. 64, under the title "Descent of the Pelvic Floor without Relative Displacement of the Uterus." I may give the measurements of another case in which prolapse of the pelvic floor was combined with slight relative descent of the uterus. Here the increase in measurement was 10·8 cm., formed of antero-posterior stretching 6·5, movement back and down 4·3, descent of anterior vaginal cul-de-sac 3·9 cm., of posterior 6·1. This patient was a nullipara, aged thirty-four, with hymen entire. Her discomfort was lessened, but not removed, by a perinæal support. The want of complete relief was probably accounted for by the fact that she had some hæmorrhoids. This case is illustrated in fig. 3.

The only authors, so far as I know, who have described changes in the pelvic floor are Schatz and Skene.

Schatz* has described subcutaneous, or rather submucous laceration of the muscles forming the pelvic floor (more particularly of the levator ani) occurring during labour. These he has ascertained by palpation *per*

* 'Archiv für Gyn.,' Bd. xxii, 1884, S. 298.

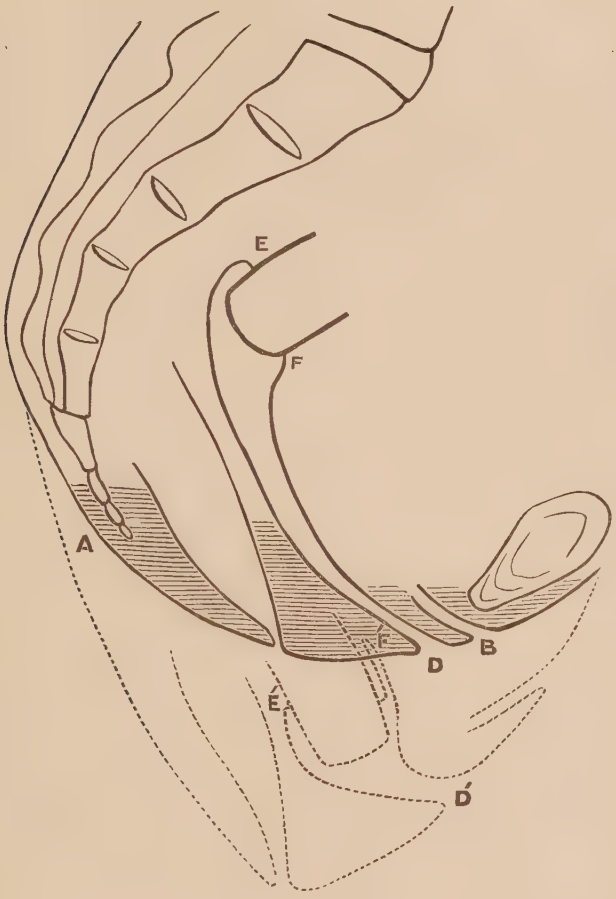

FIG. 3.—Descent of pelvic floor with slight descent of uterus. Drawn to scale from measurements. Nullipara, æt. 34. Partial relief from perinæal support.

Measurements.

	cm.		cm.
A B. Direct	10·9	D E. At rest	11·6
A B. Over soft parts	11·5	D′ E′. On straining	5
A B. On straining	21·7	D F. At rest	8·9
A D. At rest	10	D′ F′. On straining	5
A D′. On straining	16·5		

vaginam, by which gaps between the muscular bundles can be felt; and these gaps he assumes to have been produced by the tearing through of other bundles which ought to have filled these spaces. He has not verified by dissection the changes which he has described. He says that such ruptures lead to descent, prolapse, &c. I have felt gaps between the muscular bundles such as Schatz describes, but I have failed to trace any clear connection between the presence of these gaps and descent. Descent of the pelvic floor and prolapse of the uterus may occur in the virgin; and the perinæum may be torn through the sphincter ani, and the injury remain unrepaired for years without prolapse occurring.

Skene* has also described subcutaneous or submucous laceration of the pelvic floor during delivery. He does not refer to Schatz's paper, although this was published a year before. He describes not only rupture, but fatty degeneration, atrophy, and paralysis of the torn muscular fibre. He does not say that he has verified either the ruptures or the degeneration by dissection, his description being, as it appears to me, an effort of the imagination founded on the appearance of the parts during life. He describes the anus being dragged forwards or backwards as a result of changes in the pelvic floor; but it does not appear, from what is said in the paper, that he has in any case compared the state of the parts before child-bearing with their state after; and without such a comparison I do not see how it can be ascertained with certainty that the peculiarities Dr. Skene regards as changes due to parturient injuries are really changes at all. In the paper which preceded this I have pointed out that the position of the anus is different in different subjects. Skene has, however, correctly described the symptoms which prolapse of the pelvic floor produces, and he says, also as I think correctly, that the symptoms are not different from those of other forms of prolapse. But his description of the diagnosis of these injuries does not seem

* 'New York Med. Journal,' March 14th, 1885.

to me one from which it is possible to demonstrate an abnormal condition. He says, "The displacement can be demonstrated upon the subject by placing one finger upon the pubes and the other on the tip of the coccyx, and observing the extent to which the pelvic floor projects between these two points." "In the most pronounced cases the parts project downwards almost on a line with the nates." In other words, the amount of projection of the pelvic floor while the patient is at rest is the index of the amount of injury it has sustained. This is not the case: for there may be in the virgin much projection of the pelvic floor with little if any increase of that projection during effort, and no symptoms of prolapse; while there are other cases in which while the patient is at rest there is little or no projection of the pelvic floor, and yet there is great descent when the patient strains. A comparison of figs. 1 and 2, both drawn from measurement, will illustrate this; for the greater projection is here seen in the healthy nullipara. Whether the perinæum is nearly in a line with the nates or not, depends more on the amount of adipose tissue in the buttocks than on the amount of descent of the pelvic floor.

Kelly* describes "relaxation" as "the most important of all injuries" of the perinæum and pelvic floor. He says that the prominence given to it (in his article) "will, it is hoped, if at first questioned, gain general acceptance, and thus hundreds of sufferers may secure relief who are to-day looked upon by gynecologists as having sound perinæums." His description of the injuries of the pelvic floor is based upon that of Schatz; and he says nothing to indicate that he has verified by dissection the injuries he describes, any more than has Schatz. Writing as to their diagnosis, he says, "A careful inspection now shows that the anal cleft, as pointed out by Schatz, is no longer a sharp, deep furrow, but is flat and shallow; and the anus, in place of being drawn up under the pubic arch, lies

* 'American System of Gynecology and Obstetrics,' art. "Injuries and Lacerations of the Perinæum and Pelvic Floor."

flat, exposed, and dropped back. The perinæum is actually deeper than normal ; instead of being from two to three centimetres in depth it is often four or five." I cannot accept these signs as indicating injury. The depth or shallowness of the anal cleft depends principally on the fatness of the buttocks ; and I have already pointed out that we cannot safely infer that peculiarities in the disposition of the parts forming the floor of the pelvis are the result of changes produced by injury, unless we can compare the disposition before child-bearing with that after child-bearing. Kelly describes in much detail changes in the perinæum due to relaxation. Now, it is quite certain that the perinæum may be quite destroyed without producing either prolapse or any symptoms except incontinence of fæces. *A fortiori*, then, still less can minor changes in its conformation *per se* produce these effects.

I find twenty-two in which, with symptoms like those of prolapse, retroversion or retroflexion of the uterus was present. In these the average elongation of the pelvic floor was 3·0 cm. ; the average antero-posterior stetching being 1·49 cm., and movement backward and downward 1·58 cm. The average descent of the anterior vaginal fornix was 1·82, of the posterior 1·66.

Comparison of these with the groups of cases previously mentioned shows that as compared with those who were free from symptoms of prolapse, and as compared with the general average, the amount of descent of the pelvic floor was increased. But it was not increased so much as in the cases of descent of the pelvic floor without relative displacement of the uterus. And among these cases of backward displacement of uterus there are some in whom the amount of descent of the pelvic floor was very small. Thus in one case, a patient aged thirty-five, who had had eight children, and in whom the uterus was retroflexed, the measurement of the pelvic floor was increased on straining by only 1·4 cm.; the descent of the anterior vaginal cul-de-sac was 1·7 cm., that of the posterior 1·3 cm. This patient was not benefited by a perinæal support,

but was relieved by a ring pessary. In another, a patient aged thirty-two, who had had eight children, who came complaining of "dropping of the womb," and whose uterus was retroflexed, the elongation of the pelvic floor on straining was 1·2 cm., the descent of the anterior vaginal cul-de-sac was 1·4 cm., that of the posterior 1 cm. This patient was relieved by a ring pessary. In a third, a patient aged twenty-two, who had had one child, who came complaining of bearing-down, dragging pain, &c., and whose uterus was retroverted, the elongation of the pelvic floor was 1·9 cm.; there was no appreciable descent of the anterior vaginal cul-de-sac, and that of the posterior vaginal cul-de-sac was only 1 cm.

These latter individual cases appear to show that backward displacement of the uterus may be present without more descent of the pelvic floor or vagina than is present in most healthy women. The average of the whole shows that backward displacement of the uterus usually is accompanied with descent of the pelvic floor.

Shortness of the vagina has been assigned as a cause of backward displacement of the uterus. To test this, I have ascertained the average length of the vagina in thirty cases of retroversion and retroflexion. The average length of the anterior vaginal wall was 7·47 cm., that of the posterior vaginal wall 9·44 cm. These figures give no support to the view that shortness of the vagina is a common cause of backward displacement of the uterus.

The measurements made during effort show that, as a rule, in cases of backward displacement of the uterus the inversion of the upper part of the vagina is not increased in proportion to the increased descent of the pelvic floor.

I find thirteen cases in which with symptoms of prolapse there was cystocele. In most of these the cystocele was only slight. The average elongation of the pelvic floor in these was 3·4 cm., produced by antero-posterior stretching to the extent of 1·78 cm., and movement backwards and downwards 1·6 cm. (In the cases in which the cystocele was large this measurement was not taken over

the protrusion, but by its side). The average descent of the anterior vaginal cul-de-sac was 5·6 cm., that of the posterior 3·74 cm.

These figures show that the descent of the pelvic floor, although increased in cystocele, yet is not increased so much as in the cases of descent of the pelvic floor without relative alteration of its parts. Cystocele may be said to indicate that the weak spot in the pelvic floor is the anterior vaginal wall. As this descends, it presses the posterior segment downwards and backwards, enlarging the anterior opening ; but when room enough has been thus gained to allow the cystocele to bulge externally, the effect of straining is to increase this bulging, but not to produce further elongation of the posterior segment. Weakness of the anterior segment of the pelvic floor does not necessarily imply weakness also of the posterior segment. I give the measurements of cases in illustration. First, one of slight cystocele (fig. 4). Descent of pelvic floor on straining 3·4 cm., made up of antero-posterior stretching 1·7 cm., movement backwards and downwards 1·7 cm. The anterior opening was 3·5, so that on effort this was increased to 5·2 cm. Measurement over cystocele 5·5 cm. Descent of uterus 1·3 cm. This was in a patient aged thirty-eight, the mother of eight children, the last born six months ago. There had been a slight rupture of the perinæum, which only measured 1·6 cm. in length. In this case relief was given by a cradle pessary. A perinæal support failed to do good. I give next the measurements in a case of large cystocele. The patient was aged thirty-one, and had had five children, the last six months previously. The elongation of the pelvic floor, measured over the cystocele, was 15·6 cm. Stretching of posterior segment 1·7. Descent of anterior vaginal cul-de-sac 7·5 cm., and of posterior 6·6 cm.

The relation of cystocele to descent of the posterior segment of the pelvic floor may also be described in another way. When the posterior segment descends as well as the anterior, the anterior segment does not protrude, but re-

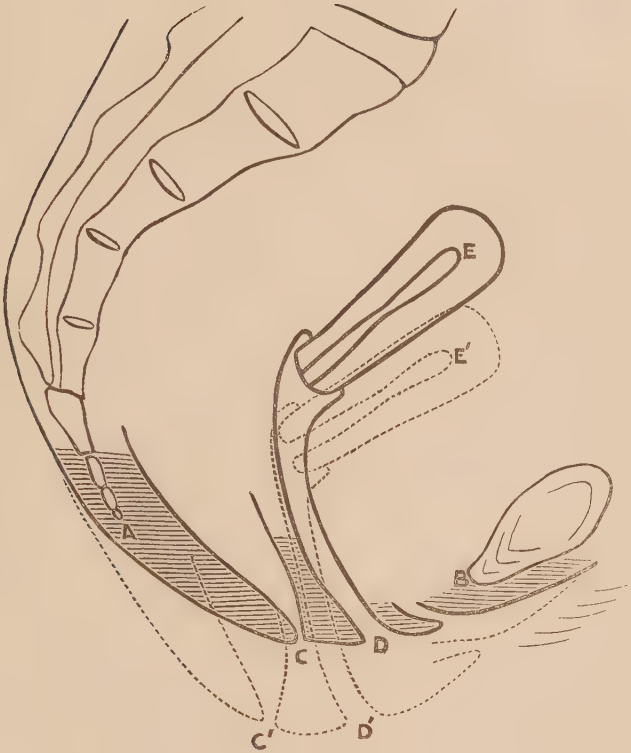

FIG. 4.—Prolapse of pelvic floor, with slight cystocele. To scale from measurements, in 8-para, æt. 38.

Measurements.

	cm.		cm.
A B. Direct	9·5	C′ D′. On straining	2·2
A B. Over soft parts, at rest	10·9	D B. At rest	3·5
A B. „ „ on straining	14·3	D′ B. On straining (over cystocele)	5·5
A C. At rest	5·8	D E. (To fundus uteri) at rest	13·4
A C′. On straining	6·9	D′ E′. On straining	12·1
C D. At rest	1·6		

mains covered by the labia. If the posterior segment does not descend, then the anterior vaginal wall forms a visible protrusion.

In some cases I have measured before and after the introduction of a vaginal pessary. The results show that the presence of a vaginal pessary does not alter the amount of descent of the pelvic floor. It extends the vagina, and makes it longer even when the patient is at rest, and it prevents the shortening of the vagina which takes place under straining efforts from being so great as it is without the instrument. The extent of these effects depends so much upon the amount of shortening of the vagina present before the application of the pessary, and upon the size and shape of the pessary, that the compilation of averages does not seem likely to give useful information.

Cases in which the symptoms are wholly due to descent of the pelvic floor are at once relieved by perinæal support. The utility of these appliances has long been known to the profession, and found out by many patients for themselves, although the cases in which they give relief had not been defined prior to my paper on the subject. But I do not propose to discuss details of treatment in the present paper.

These measurements teach a clinical lesson of great importance, viz. that the amount of descent is not the measure of the amount of discomfort caused; that the presence of symptoms does not depend upon the amount of descent.

This is shown in two ways—(*a*) by the comparison of different cases with one another, and (*b*) by observation of the same case at different times.

(*a*) In some of those patients who complained of no symptoms that could be referred to descent of the pelvic organs, there was an amount of descent greater than in some of those who complained of symptoms such as prolapse produces, and whose symptoms were relieved, or were said to have been relieved, by a mechanical support.

(*b*) In some patients in whom there was considerable

descent the symptoms have diminished and disappeared without appreciable alteration in the amount of descent. I append a diagram (fig. 5) of a case in which, after eight weeks' residence in hospital, all symptoms had disappeared, but the amount of descent was not appreciably altered. Another diagram (fig. 6) shows the same thing, and I have endeavoured also to show in it the effect of a pessary, as ascertained by measurement.

The fact that in some cases with symptoms there was backward displacement of the uterus but only very slight descent, and the symptoms were relieved by mechanical treatment, seems to point to the inference that backward displacement of the uterus without descent may cause symptoms. I do not propose here to discuss this very difficult question. I will only say that although some of the cases measured point to this conclusion, yet inferences drawn from the statements of patients are so liable to be incorrect that I think they can only be relied on when very numerous as well as harmonious.

There are two sources of fallacy which here render judgment difficult. The first is that the estimate of the amount of descent may be incorrect. This source of error I have already mentioned. It only applies to the cases in which, although there were symptoms of prolapse, yet only slight descent was perceived by measurement. The second is, that in the cases in which relief was apparently due to mechanical support, it may have really resulted from other causes. The mere fact that a patient thinks that she has been benefited by a support is no proof that such benefit could not have been obtained without it. There are no problems in medicine so complicated as the correct estimation of the effect of treatment; and this task is especially difficult when that effect consists in the removal or lessening of painful sensation, as to the reality or severity of which the patients' statements are the only evidence. On the other hand, in judging of the effect of treatment in relieving discomfort we have no other guide than the patients' statements, fallacious as they may be,

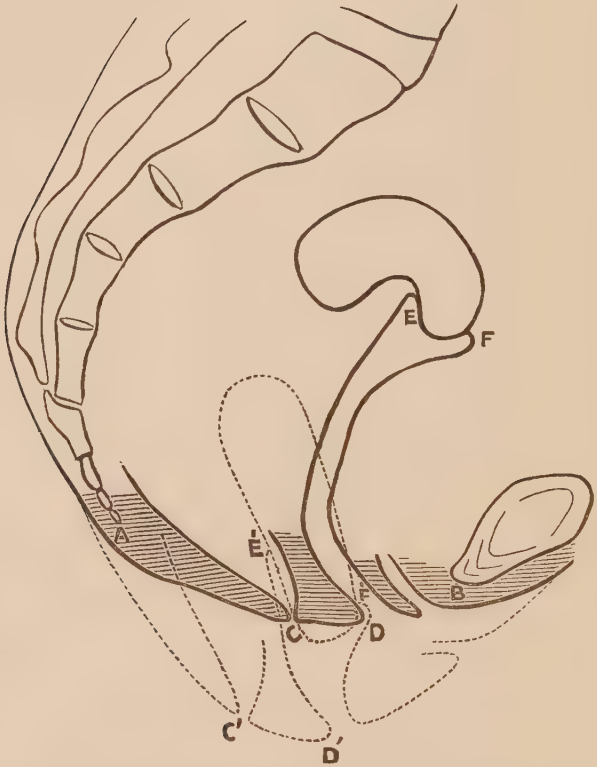

FIG. 5.—Diagram drawn to scale from measurements, of case of slight cystocele with descent of pelvic floor and retroflexion of uterus. Symptoms all removed by two months' rest, although condition of parts shown by measurement to be the same.

Measurements.

	cm.		cm.
A B. Over soft parts, at rest .	9·2	C′ D′. On straining . . .	2·6
A B. „ „ on straining	14·2	D E. At rest	8·8
A C. At rest	5·1	D′ E′. On straining . . .	5·6
A C′. On straining . . .	6·1	D F. At rest	8
C D. At rest	1·9	D′ F′. On straining . . .	3·5

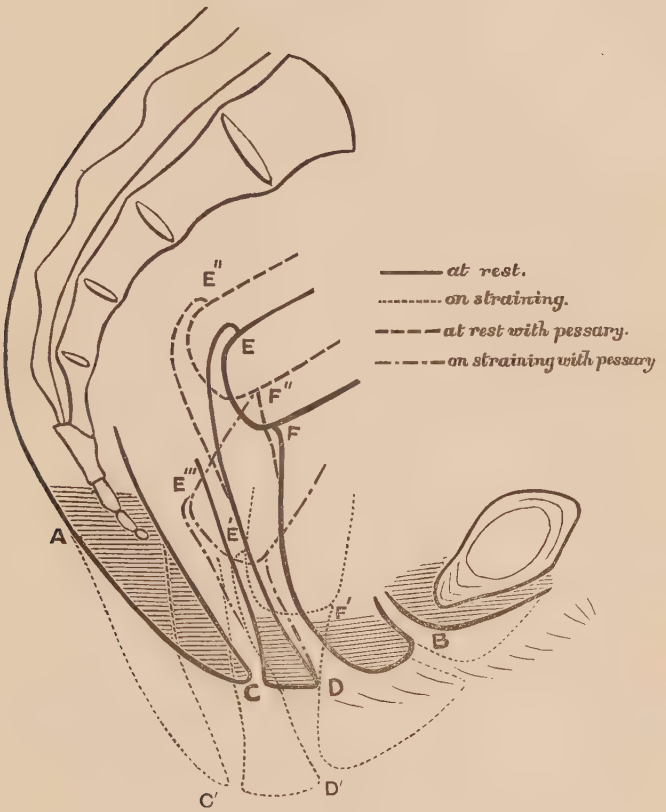

FIG. 6.—Prolapse of pelvic floor with slight descent of uterus, showing effect of pessary. Symptoms relieved neither by pessary nor by perinæal support, but relieved by rest in hospital, although amount of descent not altered.

Measurements.

	cm.		cm.
Coccyx to pubes	7·6	D E.	10·1
A B. Direct	9·6	D′ E′. On straining	6·9
A B. On soft parts	11	D E″. With pessary	10·8
A B. On straining	15·5	D′ E‴. „ on straining	8·4
A C.	6·3	D F.	7
A C′. On straining	8	D F′. On straining	5
C D.	1·7	D F″. With pessary	8·2
C′ D′. On straining	2·3		

and we must perforce rely on them. When they are numerous and harmonious, and predictions based on inferences drawn from them are found to be almost invariably fulfilled, we may at least accept them as a sufficient basis for practice.

I think the true explanation of the facts that in some cases slight descent seems to produce symptoms, while in others much descent causes none; and that in the same patient symptoms are sometimes present and sometimes absent, although the amount of descent remains the same, is this, that the amount of trouble which these slight alterations in the pelvic floor produce depends greatly upon the nervous tone of the patient. In a subject who has a weak, sensitive nervous system, a slight displacement will cause what may even be described as considerable suffering; while in a robust patient, whose nervous system is healthy and strong, the disagreeable sensations produced would be, to her, nothing. And in the weakly patient, when the tone of the nervous system has been improved, the local troubles cease to annoy. The slighter the mechanical alterations, the more will the symptoms depend upon the state of the nervous system.

In an oration delivered before the Hunterian Society, and published in the 'British Medical Journal,' June 1st, 1889, I have pointed out the resemblance between the changes in the pelvic floor described in this paper, and other diseases due to weakness of muscles and ligaments, such as the slighter cases of lateral curvature of the spine, knock-knee, flat-foot, hypermetropia, &c.

The observations which have been summarized in the foregoing pages show the following general conclusions.

1. That probably in all women there is, under the increase of the intra-abdominal pressure which accompanies muscular effort, some descent and elongation of the pelvic floor, and descent of the uterus into the vagina, by inversion of the upper part of the vagina, and probably shortening of that canal by increased wrinkling. In health the elongation of the pelvic floor probably does not

usually exceed three quarters of an inch, and the shortening of the vagina by descent of the uterus into it about five eighths of an inch. Change to this extent is compatible with absence of discomfort.

2. The elongation and descent of the pelvic floor takes place by stretching of the posterior segment both transversely and antero-posteriorly. The stretching in the transverse direction permits it to move backwards and downwards and recede from the symphysis pubis. In the antero-posterior stretching both the perinæum and the portion posterior to the anus take part, and to about the same proportionate extent. The posterior segment of the pelvic floor is pressed downwards and backwards by the pressure of the anterior segment upon it.

3. These changes may be morbidly increased, and their relative extent morbidly altered.

4. In some cases the elongation of the pelvic floor is increased, with comparatively little alteration in the relative position of the uterus and other parts. The elongation in such cases may amount to more than three inches.

5. In other cases, beside increased elongation and descent of the pelvic floor, there is increased descent of the uterus into the vagina.

6. In other cases the anterior segment of the pelvic floor is the weaker part. In such, when the posterior segment has been pressed far enough downwards and backwards to allow the anterior vaginal wall to protrude, further effort increases this protrusion, but does not increase the stretching or displacement of the posterior segment.

7. Backward displacement of the uterus is often present without more descent of the uterus or of the pelvic floor than is present in most healthy women. But in most cases of backward displacement of the uterus the descent of the uterus and of the pelvic floor is increased.

8. The amount of descent of the uterus or the pelvic floor is not the measure of the severity of the symptoms. Slight descent may go with symptoms in some patients,

much descent without symptoms in others; and in the same patient the symptoms may be present at one time, absent at another, although the amount of descent has not varied.

Dr. Graily Hewitt considered Dr. Herman deserved much credit for his analysis of the various and complex phenomena observed in cases of slighter degrees of prolapsus. The subject was of vast importance, for the sufferings and effects produced by so-called minor displacements, although not indicating danger to life, often destroyed all enjoyment of it. These sufferings also deserved attention as they not infrequently tended to gradual intensification, the result being that in later years serious impairment of the functions of the uterus was often found to be the result of neglect and want of appreciation of symptoms of minor displacements in their primary stages. Dr. Herman's study of the normal variations in the conformation of the parts forming the floor of the pelvis was an interesting and trustworthy contribution. The second paper, on the changes in the pelvic floor accompanying the slighter degrees of prolapse, contained facts and observations of interest. He was glad to find himself in agreement with Dr. Herman on many points in reference to descent of the uterus, and its effects in producing suffering. He believed, however, that in these cases the principal cause of the suffering was the exaggeration and intensification of the version or flexion of the uterus more frequently associated with descent of uterus. Descent of the uterus, pure and simple, was rare, but descent accompanied with flexion or version very common. In estimating the effects of the displacement it would be necessary to find out how much of the suffering was due to the mere descent, and how much to the increased flexion or version. So far as backward displacement was concerned, Dr. Herman noted descent to be increased by it. Nothing was said in the paper of anteflexions. He believed that although anteflexion not yet rigidly set in that shape, with the uterus still fairly moveable, might be regarded as not abnormal, it was quite a different thing when the organ was sharply bent forwards, the fundus low down, and uterus firmly resisting alteration of shape and position. He noticed Dr. Herman had several cases of cystocele. It was probable that in these cases anteflexion was a very important causative element, and he (Dr. G. Hewitt) mentioned a case illustrative of this connection. In conclusion, he would state his impression to be that descent of the pelvic floor was chiefly important because it brought about increase of flexion and consequent increase of discomfort.

Dr. Herman differed from Dr. Hewitt in many points, but could not on the present occasion occupy time in giving fully his reasons for venturing to do so. Anteflexion he regarded as one of the natural shapes which the uterus might have. He had investigated the frequency of anteflexion in the healthy, and put the results before the Society ('Transactions,' vol. xxiii). Vedeler had made a similar research, and got substantially the same result, viz. that acute anteflexion was very common in health. No one else had investigated the question. Backward displacements of the uterus, he thought, caused symptoms in a small minority of cases only, and in these he thought not by any effect of the bending of the uterus, but by the torsion and pressure on the broad ligaments, which returned the blood from the uterus. In justification of his difference from Dr. Hewitt here, he would point to Fig. 5, which illustrated a case of retroflexion. This patient was kept in hospital for two months, and all her symptoms went away, although the retroflexion was exactly as when she came in, showing that this was not an important feature of her case. In reply to the President, Dr. Herman said that the representation of the vagina was only diagrammatic, and made no pretence to accuracy except in the matter of length; and this was stated in the description placed beneath Fig. 1 of his second paper.

NOVEMBER 6TH, 1889.

ALFRED L. GALABIN, M.D., President, in the Chair.

Present—42 Fellows, and 7 visitors.

Books were presented by Dr. Cullingworth, the Clinical Society of London, the Council of University College, and the Edinburgh Obstetrical Society.

Alfred Brown, M.A., M.B., C.M.Aber. (Manchester), was declared admitted as a Fellow of the Society.

The following gentlemen were elected Fellows of the Society:—Arthur Hardwick, M.D.Durh. (Newquay); James Oliver, M.D., F.R.S.Edin.; Harry Marmaduke Page, F.R.C.S. (Wimbledon); Thomas Edward Parsons, M.R.C.S. (Wimbledon); and Thomas Richmond, L.R.C.P.Edin. (Glasgow).

PELVIC HÆMATOMA FOLLOWING DELIVERY. DEATH FOUR HOURS AFTER LABOUR.

By ROBERT BOXALL, M.D.

DR. BOXALL showed the pelvic organs of a woman, aged 30, who had died in her fifth confinement four hours after the completion of labour on the 30th ult. She was not a robust subject, but had carried fairly well till within nearly a fortnight of the expected date of delivery. Her

husband then had a fit. To the shock thus produced she attributed the hæmorrhage which took place on the following day and recurred every three or four days, until the full time of pregnancy was reached. On each occasion the loss was slight, and ceased after she had lain down for a few hours. Once only did she think it necessary to apply to the hospital for assistance, and then the maternity clerk reported the loss as trifling, and as having already ceased on his arrival.

When labour began on the morning of the 29th the bleeding again recurred. At 11 a.m. some clots were removed from the vagina. The bleeding ceased, and the pains died away. Towards evening the bleeding came on again. At 10 p.m. Dr. Boxall saw her ; she still had no pains. The cervix was about two inches in diameter, soft and dilatable, situated high up and far back, with difficulty reached by the finger. The vertex was presenting above the brim, and could everywhere be distinctly felt. The abdomen was pendulous, the child's movements vigorous. A binder was applied in order to rectify the the anteverted state of the uterus, and the membranes were then ruptured. The hæmorrhage ceased forthwith. Regular pains came on half an hour later, and for a time the presentation advanced. At 11.30 p.m. the pain began to die away, and the head in consequence became arrested in the cavity of the pelvis. Two hours later the woman was becoming exhausted ; dark fluid blood was escaping freely from the vagina ; pulse 100. No progress being made, at 2 p.m. the forceps was applied and delivery was easily effected, the head not being impacted. The child was alive. Immediately following delivery of the trunk a copious loss of dark semi-coagulated blood took place, succeeded by fluid blood of a brighter hue. Compression failing to bring away the placenta, the hand was introduced, the attached portion peeled off, and placenta and membranes removed entire. The uterus remained like a flaccid bag, and free hæmorrhage followed. Ext. Ergot. Liq. ʒij had been given by mouth. Ergotin. gr. x was

injected into the buttock, and a hot intra-uterine douche of weak sublimate administered. Though the hæmorrhage was checked, it did not stop until 3 a.m., and even then the uterus seemed inclined to relax. The ergot by mouth and intra-uterine douche were repeated. Up to this point the total loss which had taken place since the beginning of labour was estimated at twenty to thirty ounces. The patient was not particularly blanched, did not feel faint, but answered questions in a fairly strong voice. The pulse, which had been as high as 140 per minute, had now sunk to 98, and half an hour later to 88. Another dose of ergot was given as a precautionary measure before the patient was left. She was then asleep, and continued to sleep from 4 till 6 a.m. When she awoke she said she felt as if she were sinking through the bed, and knew she was dying. She asked to see her husband, and in a few minutes she was dead.

Meanwhile there had been no external hæmorrhage; the diaper put on at 3 a.m. had been barely stained. The only clue to the state of affairs revealed by the autopsy was the œdema of the perinæum, which came on about half an hour after labour, though no laceration had taken place.

The autopsy was made twenty-eight hours after death. Except that the lungs were somewhat adherent at their apices and the left showed traces of old tubercular mischief in the same part, all the organs were healthy though bloodless. The right side of the heart contained four to five ounces of fluid blood, but the pulmonary arteries, like the left side of the heart, were empty. On raising the intestines and drawing the uterus forwards, an extensive blood effusion was seen running along the sacro-uterine ligaments on either side, and following the course of the ureter to the lower border of the kidney, being rather more pronounced on the left than on the right side. On removing the organs from the walls of the pelvis the effusion was found to infiltrate the cellular tissue, particularly deep down in the cavity and on the left side. It surrounded

the rectum and extended into the peritoneal fold of the sigmoid flexure. In front it was limited by the attachment of the pelvic fascia to the bone at the upper part of the obturator foramen on either side, and below it was found to extend to the perinæum, thereby causing the swelling which had been noticed soon after delivery. The blood had infiltrated the ischio-rectal fossæ as far back as the anus, and on the left side had extended even behind it. On opening the uterus it was found to contain barely an ounce of clotted blood. The placental site was situated on the front wall, its lower edge extending to within two inches of Bandl's ring and three and a half inches of the external os. A slight tear was found on the left side of the cervix, but not more than one third of an inch deep. The right ovary contained a corpus luteum about the size of a haricot bean; the left ovary was much flattened out.

Dr. Boxall had seen a case of death from internal hæmorrhage following delivery some years ago, which in some respects resembled this. The patient sank in the same unexpected manner, and an effusion of blood had taken place also beneath the peritoneum. But in that case the peritoneal coat had been dissected off from the posterior uterine wall by the effusion, and it seemed probable from its situation that some vessel had given way at the back of the cervix. In the present instance, however, the main part of the effusion was below the cervix altogether; and though, as in the other case, no open vessel could be discovered, it seems probable, considering the extent and distribution of the effusion, that a vessel of no inconsiderable size had given way between the vagina and rectum to the left of the middle line, and that from this point the blood had forced its way downwards to the perinæum, and infiltrating the cellular tissue of the pelvis had travelled upwards along the ureters to the lower end of the kidney. Though the ovarian vessels were surrounded by clot, they were found to be quite empty and their walls intact. Had the patient suffered from varicose veins it would have been easy to understand how, by the

implication of a vessel in one of those tears external to the vagina, such as Dr. Matthews Duncan has described, an effusion of such an extensive character could be produced, but in this case no varicose veins were detected either in the vagina or elsewhere. The amount of effusion was estimated at a pint at least.

Three years ago Dr. Boxall exhibited another specimen, in which the heart had been forced during vomiting through a congenital deficiency in the pericardium into the left pleural cavity, causing torsion and strangulation of the vessels at its base, an accident which was followed by fatal consequences three days after delivery. Such cases as these, in which, as far as we could see, the accident could neither be prevented nor remedied, nor its nature ascertained with any degree of certainty during life, Dr. Boxall considered should emphasize the advisability of obtaining a post-mortem examination in all cases where death occurred within a few days after delivery.

Dr. Matthews Duncan referred to cases lately published by Prof. Ogston. In one of them a severe pressure injury below the knee caused effusion of blood and serum as high as the navel. So great was the disruption of tissue that the hand and arm could be passed from the knee to the navel beneath the skin. Ever since these cases appeared, he had looked for some similar accident in connection with the pressure injuries by forceps, however justly and skilfully used; and he suggested to Dr. Boxall the possible analogy of his remarkable case and Ogston's. The cases which he himself had published, and to which Dr. Boxall had referred were, in his opinion, not in the same category with Ogston's and the present case of Boxall; he regarded them as submucous injuries or lacerations, the mucous membrane being entire; the bleeding or submucous hæmatoma being confined to the seat of the laceration. Such deep lacerations, without injury of surface, were known to occur.

Dr. Barnes said that he had long ago called attention to a point in the history of labour, which was that, even in normal labour, and *a fortiori* in difficult labour, the head, in its descent through the pelvis, carried before it the mucous membrane of the posterior wall of the vagina, stretching and even lacerating the subjacent connective tissue. This sliding or glacier-like

action involved laceration of small vessels in the connective tissue, entailing more or less hæmorrhage. It was easy to understand that even considerable hæmorrhage might occur if a large vessel were ruptured. Another condition arising from this glacier-like process was the effusion of a considerable amount of serous fluid in the connective tissue. This he had always observed in the autopsies he had seen of women dying within a few days of labour. This effused fluid was rapidly absorbed, as it was one element in the blood-degradation of pregnancy.

SECTIONS OF UTERUS AT DIFFERENT PERIODS OF THE PUERPERIUM, SHOWING COMPLETE ABSENCE OF THE ALLEGED FATTY CHANGES.

By W. S. A. Griffith, M.D.

THE UTERUS, OVARIES, AND TUBES FROM A CASE OF CÆSAREAN SECTION.

By C. J. Cullingworth, M.D.

RETROFLEXION AND ECTOPIA VISCERUM.

By W. R. Dakin, M.D., B.S.

Dr. Dakin showed a fœtus which was the subject of retroflexion and ectopia viscerum. It had also considerable lateriflexion to the right, talipes valgus in both feet, and the left arm was ill-developed, with a web at the elbow, and only two digits. Its sex was doubtful, but was probably female. He intended to dissect it, and present a further report to the Society.

It was one of twins, and the mother was about eight months pregnant. This confinement took place under the

care of a midwife, who was a very intelligent woman, and gave Dr. Dakin the following account. She had ruptured the membranes, as the first stage seemed very long, and one child presented by the head and was born. Immediately after, with no separate bag of membranes, something that she took for a scrotum, but which turned out to be a liver, presented. The fœtus to which this belonged—the present specimen—then came down doubled up backwards, the head and heels descending at the same level as, and applied to, each other.

There was no cord in this case, but a "string of membrane," which was stretched up the vagina, and was attached to the corresponding placenta; this latter when it was born being seen to be closely approximated to, and in fact to form part of, the anterior abdominal wall.

Both placentæ were said to be embedded in the same amnion at a distance of half an inch from each other. The placenta belonging to the first child was of the normal size, but that of the specimen was about four inches in diameter and very thin.

The placenta had been thrown away, and the abdominal coverings, viz. amnion and continuation of peritoneum, much torn, but the umbilical vessels were plainly visible running between these two. The child gasped and its heart beat for an hour or two after delivery. The other child was well formed, but small. It died seemingly from asphyxia on the third day. The mother had had two children before, was aged twenty-four, and was said to be healthy.

LARGE MYOMA OF LEFT BROAD LIGAMENT.

By William Duncan, M.D.

Report on Mr. Alban Doran's Specimen of Fragment of Membrane passed from the Uterus (p. 229).

The fragment when examined under the microscope displayed an abundance of small spindle-cells, broad in the middle, mingled with round cells in smaller quantity and with blood-corpuscles. The stroma was homogeneous and transparent, and the small oval and circular openings devoid of any epithelial lining.

From the naked-eye and microscopic appearances of the fragment there could be no doubt that it was altered uterine mucous membrane. Its precise character, however, could not be determined.

John Williams.
Walter S. A. Griffith.
Alban Doran.

A CASE OF LARGE CHYLOUS CYST OF THE MESENTERY.

By Adolph Rasch, M.D.,

PHYSICIAN FOR DISEASES OF WOMEN TO THE GERMAN HOSPITAL; PHYSICIAN TO THE DEACONESSES' HOSPITAL AT TOTTENHAM.

Received September 30th, 1889.

Fa. H—, aged 21, single, was admitted into the Deaconesses' Hospital on February 9th, 1889. She had always been in good health, some discomfort at the otherwise normal menstrual periods excepted.

Three weeks before, and a whole week after lifting a heavy trunk, she went to bed quite well, but was wakened in the middle of the night by severe pain in the left side of the belly, which continued more or less for three weeks in spite of medical treatment. Dr. Rasch, who was called in on February 7th, detected a tumour in the left side, and had her admitted into the hospital.

State on admission.—Well-nourished but anæmic girl of dark complexion (Jewess). Lungs, liver, heart, show nothing abnormal. Dark pigmentation of the middle line of abdomen. A large roundish swelling, elastic, almost fluctuant, occupies mostly the left side of the abdomen. Right border an inch and a half to the right, left border four inches to the left of the median line, reaching equally down to the pelvis. The rounded top of the swelling about two inches above the horizontal umbilical line. Slightly moveable.

Uterus not enlarged, freely moveable, not connected with tumour. Uterine sound entered easily two inches and a half in normal direction. Little could be felt of the tumour *per vaginam*.

Patient was kept quiet in bed. Pains were moderate, appetite indifferent.

February 13th.—Same measurements, only the tumour had extended more towards the chest. Patient finds that in rising from bed it bulges out most in the left flank. Pains in side and back have increased. Temperature up to the operation varying from 97·4° to 99°. Never trouble from the bladder.

Operation on March 22nd. The case being supposed to be a parovarian cyst, the usual incision of three inches was made in the middle line, the peritoneum (as is my usual practice in abdominal sections) secured to the cut skin on each side by a temporary suture, and then the peritoneum fully slit open. The appearance of the tumour at once struck all present; it was of a pale pink and very glossy, unlike any cyst I had seen before. No adhesions could be felt anywhere. On piercing it with a large trocar a perfectly milk-like fluid squirted out with great force, but little entered the peritoneal cavity. I first thought it might be very thin pus, having a very distant likeness to the fluid I once found in a large hydatid tumour which extended from behind the liver and peritoneum down to the broad ligament. To get a clearer view I enlarged the incision to a little above the umbilicus; now drawing the walls of the cyst gently out and emptying it, it became evident that what appeared to be a cyst was the two layers of the mesentery separated from each other by that milk-like fluid. The small intestine, of perfectly normal appearance, was connected with it in the normal way. The hand inside came down to the region of the spine, the usual insertion of the mesentery. The inside of the cyst was intensely congested, looking dark red and freely oozing. I cut out only a small piece (about one inch square) for examination.

Uterus, ovaries, and left broad ligament were perfectly healthy; on the right broad ligament, however, otherwise quite healthy, was a very thin-skinned translucent cyst, the size of a walnut, quite superficial as if it were only perito-

neum raised by fluid. It was tied and cut away. The fluid was faintly straw-coloured, almost like water.

The cyst cavity was sponged clean and, like the peritoneal cavity, washed out with warm boracic lotion. The opening of the cyst was carefully stitched to the abdominal wound, which in the usual way was closed as far as convenient with silk sutures. A long roll of iodoform gauze was introduced into the cyst to stop oozing and to act as a drain, the whole covered with sublimate gauze after dusting with iodoform. Usual bandage applied over all.

Six pints of the *cyst contents* were collected, and part kept for examination.

The patient was rather collapsed towards the end of the operation. Two severe attacks of sickness in the middle of it had prolonged it to eighty minutes (from beginning of chloroform). Brandy subcutaneously administered had a good effect. Coming to, the patient complained much of pain in abdomen, and was very restless; gr. $\frac{1}{6}$ morph. under the skin gave her a good night.

The fluid was examined by Dr. Ferguson two hours after the operation, and also by Dr. Michels, of the German Hospital, next day. Dr. F. found the white of the fluid then changed into a pinkish colour, and there was a decided quantity of firm pinkish clot. Sp. gr. 1015. Reaction alkaline. Microscopical examination showed lymph-corpuscles, a few blood-corpuscles, and few cholesterine crystals, fat globules, and moving over the field of vision were some very fine molecules. Adding ether to some of the fluid in a test-tube it cleared up, and the microscope showed then no more fat globules. Dr. Michels found the same characteristics of true chyle.

I may here add at once that a later examination of the piece cut out showed that there was no epithelial lining, nothing like a true cyst wall. Only the outer peritoneal layer and the fibrinous subserous structure somewhat thickened. The cyst, if I may use that word, was therefore formed by the mere separation of the two layers of the mesentery by the chyle.

Not willing to occupy too much time of the meeting, I shall condense the notes of the progress of the case as much as possible. Patient had a fairly quiet night after the operation, and was sick several times in the early morning, bringing up green fluid. Weak. Irrigated with boric solution. Temp. 99°, morning; 100·5, evening.

March 24th.—Good night. Not sick. Takes milk. Temperature, 100°; evening, 100·4°. Bandage not soaked yet.

25th.—Good night. Considerable discharge, serous, no smell. Temperature normal.

26th.—Some milky discharge (containing some pus cells and fat globules). Temperature normal.

30th.—Upper stitches removed; good union.

April 2nd.—Considerable milky discharge. All sutures removed. Temperature normal.

5th.—Irrigated with boric solution.

6th.—Discharge of milky fluid more copious.

10th.—Catamenia appeared. Had some fish the last two days.

23rd.—Got up for the first time.

24th.—The discharge of milky fluid undiminished; cavity stuffed with iodoform gauze.

25th.—Temp. 100·8°. Pain in the stomach, the plug had caused retention; removed and tube put in. Weight of patient, 7 st. 6 lb. (on admission 9 st. 8 lb.).

May 9th.—Tube has been gradually shortened. Discharge of same character and quantity. Pain in abdomen. Temperature henceforward quite normal.

15th.—Discharge much less. Difficulty to get the more shortened tube in.

17th.—Weight 7 st. 13 lb.

25th.—Weight 8 st. 2 lb.

28th.—Tube came out at night. Thin probe enters. Wound now closed perfectly. Good cicatrix. Patient discharged quite well after a short time; continues well.

Remarks.—As far as I have been able to ascertain, no case of a chylous cyst of the mesentery in a woman has been

published yet, and I hope, therefore, this short paper will need no apology in a society many members of which are distinguished abdominal surgeons.

The question now is, How does such a cyst originate? and on the answer to it depends the prognosis and, in no little way, the treatment. Obstruction of the thoracic duct and consecutive distention of the lymphatic vessels have been found by Rokitanski, Virchow, and others to be the cause of little lymph cysts in different parts of the body. The lymphatics of the small intestine have been found enlarged like strings of beads. Winiwarter ('Mittheil. a. d. Rudolph's Hosp. Jahresberichte,' ii, 321) found a very large swelling in a weakly child aged four months, in the right hypochondrium, and evacuated on several occasions about six pints of milk-like fluid. He ascribed the case to obstruction of the thoracic duct. Dr. Killian ('Berl. klin. Woch.,' 1886, 407, ff.) operated successfully on a very large postperitoneal lymph-cyst situated in the right renal region, which he had previously tapped (five pints) and which had refilled. He thinks also that it might be due to obstruction.

The perfectly normal appearance of the adjoining small intestine in my case and the perfect health of the patient up to a certain time seem to speak against a similar cause. I am rather inclined to believe the cyst originated from the rupture of a chylous vessel of the mesentery, very likely caused by the lifting of a heavy trunk. It is a mere supposition, but supported by the pathological observations of others, that at that time a distention of that vessel, a small lymphangioma, was already present and burst, and so caused a rapid separation of the two layers of the mesentery.

Diagnosis.—Can we diagnose such a chylous cyst of the mesentery before opening the abdomen? That I did not do so I have already stated. I had no idea that such a disease existed, and I may be pardoned for that ignorance, as I had never found any mention of it in all the gynæcological and other works I had read. Sir Spencer Wells,

as I subsequently found in the new edition of his work, has published two cases of cysts in the mesentery (*not* chylous cysts) which he had not been able to diagnose before the operation.

Péan ('Tumeurs de l'Abdomen'), in his excellent work, gives the details of two cysts of another nature in the mesentery, and for diagnosis lays stress on what he thinks is a constant fact, viz. that tumours of the mesentery, as long as they are of moderate size, are always found in the umbilical region, quite symmetrical, and have free transverse but little vertical mobility. My case does not bear him out, as it was undoubtedly lateral. Prof. von Bergmann's case* of a chylous cyst of the mesentery in a male aged sixty-three is well in harmony with Péan's opinion. The patient himself had found a round tumour in the umbilical region, and von Bergmann found it there too, fluctuating and freely moveable from side to side. He therefore with great probability expected to find an echinococcus cyst of the mesentery or peritoneum. The cyst contained chyle, and seems to be the first ever published.

In a woman the uncertainty of diagnosis must be infinitely greater, especially when such a cyst has attained a considerable size, as in my case. The intestine connected with it will be pushed high up and behind the tumour, and the cyst itself will reach down to the broad ligaments. Still I now think it might be possible, by raising the pelvis very high, in a future case to make the tumour roll downwards towards the chest, and so clear the broad ligaments. A mistake for a broad ligament or ovarian cyst might so perhaps be prevented.

To *diagnose* the contents as chyle seems impossible to me at present, as I, with I hope the majority of ovariotomists, abhor tapping.

The *prognosis* of these cases seems favourable if we may judge from three cases (I include Killian's case, though situated in a different place). But the good result depends on—

* 'Arch. f. klin. Chirurgie,' von Langenbeck, 1887, S. 201, ff.

The *treatment*.—It would be a fatal mistake to try to enucleate or excise such a cyst, as by so doing the mesentery would be removed and the vital supply to the intestine connected with it cut off. It seemed to me that the only proceeding which promised success was to empty the fluid, allow for the free outflow of any that might be poured out afresh, and avoid any traction on the intestine when stitching the mesentery to the abdominal wound.

It was with great satisfaction that I subsequently learned that Prof. v. Bergmann had done exactly the same in his case.

My only fear was that the ruptured chylous vessel, or, to speak less hypothetically, the place from where the chyle had poured out, might remain open and, continuing to flow, imperil the health if not the life of the patient. As is seen from the notes, this fear for a number of weeks was well grounded, for the flow continued copious, and the patient lost in weight. Still I trusted to careful drainage, and was rewarded by perfect recovery. Mildly antiseptic, cautious irrigation kept wound and cavity safe.

The object of this paper is only to bring a chylous cyst of the mesentery before the Society, otherwise I might be tempted to say that the above treatment seems to promise better results for other cysts of the mesentery than extirpation or emptying without subsequent drainage (as in one of Sir Spencer Wells's and in one of Péan's cases).

I shall feel greatly rewarded for the little trouble I took with this paper if it will elicit similar cases from the Fellows present, or if any member will kindly direct me to publications that I have overlooked.

Dr. William Duncan suggested that the tumour might well be dermoid and not chylous.

Dr. Boxall could scarcely see how the escape of chyle into the loose cellular tissue of the mesentery could produce a cyst, but he thought that the possibility of a chylous cyst in that situation originating in an echinococcus cyst should be entertained. Hydatid cysts are sometimes barren; and if blood and bile

could find their way into them, there were *primâ facie* grounds for believing that in a situation in which lacteals abound chyle might do the same and distend the cyst, so that all trace of its pristine nature might eventually disappear.

Dr. Carter said he had reported in the 'Brit. Med. Journ.,' 1883, a case of cyst of the mesentery simulating an ovarian monocyst. At the operation the ovaries and uterus were free from the cyst and healthy; the fluid was clear and opalescent, of very low specific gravity, without albumen, but abundant chlorides; it was not a hydatid. The cyst sprang from the insertion of the mesentery on the left side of the spine, and was surrounded with the coils of intestines. He quite agreed with Dr. Rasch in the way such a cyst should be treated, never enucleated, but stitched to the abdominal walls and drained. In his case enucleation was attempted, but abandoned, as the hæmorrhage was great from ruptured large veins; it was then stitched to the abdominal walls. The patient died from septicæmia, through the extravasation of blood between the cyst wall and the layers of the mesentery.

Mr. Alban Doran considered that Dr. Rasch's definition of his tumour was perfectly reasonable and probably correct. He believed that, excepting certain cases where dermoid cysts developed in connection with the pelvic viscera in males, as noted in the 'Medico-Chirurgical Transactions,' vol. lxiii, 1880, by Dr. Ord, non-ovarian dermoids of the abdomen were very rare. Whenever the pelvic viscera had been satisfactorily explored, it was proved that a dermoid lying free from those organs was of ovarian origin, the pedicle having become atrophied by torsion, ultimately disappearing.

Dr. Matthews Duncan mentioned a case of his in which Mr. Thornton had removed a large mesenteric cyst, with clear contents. It had been diagnosed as probably ovarian. The operation showed no connection with the uterus and broad ligaments. He referred also to a case of his, operated on by Mr. Langton in St. Bartholomew's Hospital. In this case, which was published imperfectly, both ovaries were removed, both being dermoid cysts. A third cyst, the size of an egg, having hair growing from its inner surface, was removed from between the layers of the mesentery; it had no connection with either ovary. In both of these cases there was good recovery, so that the precision attainable by autopsy was not obtained.

Mr. Doran noted that an exogenous growth on an ovarian tumour might become completely severed from its parent. He had seen such a growth adherent to the vermiform appendix. Hence the third tumour was not necessarily non-ovarian.

Dr. Rasch, replying, said that after the several careful examinations made of wall and contents no doubt was left of its nature. Echinococcus, as stated in the paper, was before the

mind of the operator, but was readily excluded by the microscopic examinations of the fluid and the piece cut out. That any one should believe this case to be a dermoid cyst of the mesentery he had certainly not expected, even if one admitted the possibility of a dermoid cyst forming between the serous layers of the mesentery. Dr. Rasch felt much gratified that such an excellent authority in these matters as Mr. Doran so fully supported his views.

A CASE OF VESICO-UTERO-VAGINAL FISTULA.

By Charles J. Cullingworth, M.D., F.R.C.P.

Received June 28th, 1889.

A married woman, aged 37, residing at Braintree, Essex, was admitted into St. Thomas's Hospital, February 7th, 1889, for incontinence of urine, first noticed after her third confinement, twelve months ago. The patient was a healthy woman, of small stature and feeble intelligence. It was difficult to obtain a coherent history, but the following facts were elicited. She had been married six years, and had borne three children. All her deliveries were instrumental. The first and third children were born dead, having been destroyed during delivery. The second child was delivered by forceps, and lived two years. The patient cannot say whether the urine began to pass involuntarily the day following her confinement, or not until a week after.

A vesical fistula was found in the middle line of the anterior vaginal wall, running transversely immediately in front of the cervix, in the furrow formed by the reflection of the mucous membrane from vagina to cervix (Fig. 1). The fistula admitted the tip of the finger up to the first joint. The portion of the cervix projecting into the vagina was intact, but on passing the finger through the fistulous opening, a laceration, with ragged edges, was detected higher up in the posterior wall of the bladder, extending into the cervix (Fig. 2). On passing a uterine sound into the cervix, the point passed through the laceration into the bladder. On February 14th the anterior lip of the os uteri was divided, when the cervical laceration at once gaped widely (Fig. 3), and by elevating the

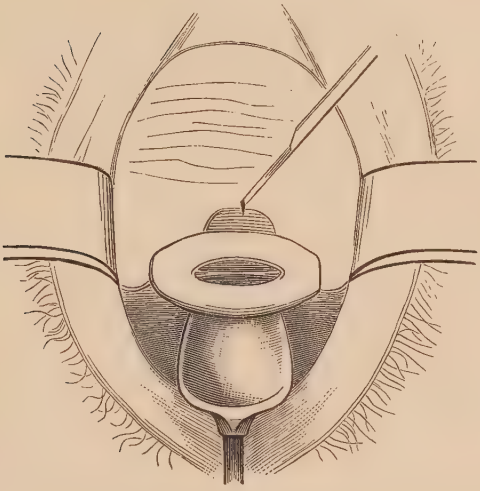

FIG. 1.—Vesico-vaginal portion of the fistula, situated at the vaginal reflection, its edges held apart by hooking up its anterior border.

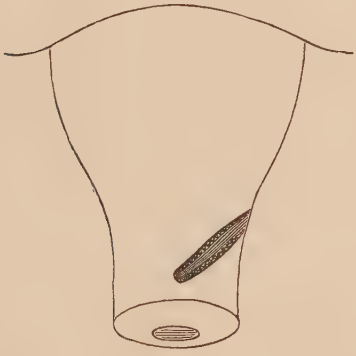

FIG. 2.—Vesico-uterine portion of fistula (diagrammatic).

FIG. 3.—Vesico-uterine portion of fistula after division of the anterior lip (diagrammatic).

anterior margin of the vaginal portion of the fistula with a hook, could be seen to extend obliquely upwards and to the left, to the distance of about an inch. The edges of the laceration were now carefully freshened by cutting away a strip of tissue on each side with the scissors, and were then united by three or four sutures of silkworm gut, passed from the outer aspect of the cervix, most of them being tied within the bladder. The ends, left long enough to reach the vulva, were brought through the vaginal portion of the fistula, the repair of which was reserved for a future occasion. The necessary manipulations for the repair of the cervical laceration were facilitated by keeping the anterior border of the vaginal fistula hooked well forward all the time. Milk was now poured into the bladder by means of a glass funnel and india-rubber tube ; no oozing appeared from within the cervix. The vagina was douched with solution of corrosive sublimate (1 in 3000). The operation lasted an hour and three quarters. The bowels acted at the end of a week. On the 26th (thirteenth day) the stitches were removed, and the wound appeared to have healed throughout.

On March 2nd the patient was examined. No oozing appeared at the os uteri when milk was poured into the bladder. Two sounds passed, the one into the cervix and the other into the bladder, did not touch one another. There being some inflammation about the margin of the vaginal fistula, where it had been held open by the blunt hook, further operation was postponed for a few days.

On March 29th the repair of the vaginal portion of the fistula was proceeded with. It had undergone a considerable amount of contraction, and its long axis was now fortunately found to be no longer transverse, but nearly parallel with the axis of the vagina. The margin was denuded freely in the usual way, and the fistula closed by five sutures of silkworm gut, the ends of which were left long enough to reach the vulva. During the operation the vagina was exposed by a broad perinæal spatula and a fenestrated vaginal elevator in front; while the cervix was drawn well down by means of a volsella in the posterior lip. Hæmorrhage was checked by occasional douching with hot boracic solution. Pledgets of cotton wool, saturated with solution of corrosive sublimate (1 in 1000), were used instead of sponges. After the sutures were tied some milk was poured into the bladder; none found its way into the vagina. The bladder was therefore washed out with boracic solution, and an iodoform tampon placed in the vagina in contact with the wound, orders being given to remove it the following morning. The patient was allowed for the first few days to pass water, without assistance, every two hours. This plan, however, did not answer. The draw-sheet was found slightly soiled with urine on the evening of the second day, and continued to be so for two days. An examination was then made with the view of inserting another stitch if necessary. The patient meanwhile maintained that the leakage came from the urethra, and this proved to be the case. Milk was poured into the bladder, and, as none escaped through the wound, the patient was sent back to bed. The catheter was now

ordered to be passed every four hours, and there was no further leakage.

On April 5th (eighth day) the sutures were all removed. All had held firmly, without any trace of ulceration or suppuration along their track. The catheter was discontinued on the ninth day, and the patient allowed to sit up in bed to her meals.

On April 13th she was discharged well, with complete control over the bladder.

Remarks.—The character, shape, and position of the fistula seem to me to point rather to its having been the result of laceration than of sloughing. Unfortunately the patient was by no means clear as to how soon after delivery the urine began to escape, so that its mode of causation must remain matter of surmise. I consider myself fortunate in having succeeded in closing the cervical portion of the fistula so easily. Had the first operation not succeeded, I intended to dissect up the bladder from the cervix, and deal with the uterine fistula in the manner recently suggested and successfully practised by Dr. Champneys. The only point in the treatment to which I wish to call special attention is the leaving the ends of the sutures sufficiently long to hang down in the vagina. This plan greatly facilitates removal, and avoids irritation of the vaginal mucous membrane.

Dr. Griffith had recently operated on a similar case by the usual operation; everything apparently went well, the bladder remaining water-tight, but he had heard that the menstrual blood, since the operation, passed entirely into the bladder. He had offered to put this right, but the patient was so pleased with the freedom from the ordinary inconvenience of menstruation that she declined to have anything done.

Dr. William Duncan always used silver sutures in vesical fistulæ; fastened them with coils and shot to facilitate removal, and passed all the sutures through a piece of india-rubber tubing to prevent irritation of the vagina.

Dr. Cullingworth apologised for occupying the time of the Fellows with the narration of a single case. He desired to draw the attention of all those interested in the subject of vesical

fistulæ to a short paper of singular value, published in the last volume (vol. xvii, for 1887) of the 'St. Thomas's Hospital Reports,' by Mr. Milton, of the Civil Hospital at Cairo. Mr. Milton's experience was, he ventured to think, unique. In three years he had performed the operation for vesical fistula in fifty cases, several of these having required to be operated upon more than once. The paper consisted of a summary of these operations, and a clear statement of the conclusions at which the author had arrived as the result of his exceptional experience. The large number of cases was explained by the fact that the poorer native women had no assistance during labour; they simply waited until the child came, whether that happened in a few hours or whether it took a week or more. Hence urinary fistulæ were exceedingly frequent. Lacerated perinæum, on the other hand, was scarcely ever seen. Mr. Milton's extreme modesty had, unfortunately, prevented him from yielding to the solicitations of his friends to reprint his paper. It was, therefore, in great danger of being overlooked.

A CASE OF LUPUS OF THE VULVA.

By Arthur H. N. Lewers, M.D.Lond., M.R.C.P.Lond.,
ASSISTANT OBSTETRIC PHYSICIAN TO THE LONDON HOSPITAL.

C. W—, aged 22, has been married six years, but has had no children or miscarriages; she was admitted to Davis ward of the London Hospital on August 24th, 1888, complaining of having a swelling in the private parts.

History of the present illness.—She had a yellow discharge from the vagina two years ago. Soon afterwards she noticed a small growth in the vulva, which has gradually increased to its present size.

When the yellow discharge began, the private parts swelled up suddenly, and she had pain in passing water.

No history of buboes. Of late there has been no pain or trouble in micturition.

The catamenia began at fifteen, and have always been irregular, and accompanied with pain.

The family history was of no special interest.

Present state.—On inspection of the vulva there is seen a somewhat spherical pendulous lump, smooth and of a whitish colour on its inner surface, irregular and somewhat nodular on its outer aspect, which has a brownish tint.

The measurements of the growth are as follows:

Extreme antero-posterior diameter = $3\frac{1}{2}$ inches.
Maximum transverse diameter - = 2 „
Greatest circumference - - = 8 „
Projection from the vulva - - = $2\frac{3}{8}$ „

The tumour grows from the left labium minus, but its attachment is a broad one, and also involves the anterior upper part of the right nympha and the prepuce of the clitoris.

Anteriorly and externally there is a secondary projection, the size of half a walnut, from the general surface of the growth.

The labia majora are thickened by a kind of solid œdema, so that each one measures one inch across. They do not pit on pressure.

Behind and externally the labia majora are studded with small warty prominences, and there are similar ones on the perinæum, extending as far back as the anus. There is also one the size of a halfpenny on the mons Veneris.

Where the affected surfaces are in contact there is superficial ulceration.

The parts are not tender.

The vagina is healthy as far as the finger can reach.

The glands in the groins are not tender, and are not enlarged.

There is no history of syphilis to be obtained, nor are there any signs of it about the patient. She distinctly says the cause of the yellow discharge was that "her husband gave her the bad disorder," and there is every reason to believe that by this she means gonorrhœa, and not syphilis.

Operation.—August 28th the patient was put under ether, and the pedicle of the tumour was clamped with two pairs of Wells's large pressure forceps. The pedicle was then cut through with Paquelin's cautery.

All the small warty prominences already described were also burnt off.

The large pressure forceps were then taken off, and the cut surface of the pedicle thoroughly seared with the cautery. There was some bleeding even when this was done, and as the tissue of the pedicle seemed too rotten to bear a ligature, two pairs of small pressure forceps were left on the bleeding points for twenty-four hours.

The patient did quite well, and left the hospital in about three weeks' time. The hypertrophy of the labia majora remained as before.

The patient came up to the hospital regularly to see me, and although the labia majora remained hypertrophied as before, there were no ulcerations seen till the beginning of January, 1889. There was then found to be a lump the size of an almond lying beneath the mucous membrane, just inside the vulva, on the right side. It was hard, and the surface was red and ulcerated.

The patient was readmitted, and after trying the application of iodoform to the patch without benefit, she was put under ether, and the lump pinched up and dissected out with Paquelin's cautery.

The wound healed up soundly, and the patient went home. I have seen her frequently since; the labia majora remain in the hypertrophied condition already described, and up to about the end of May, when I last saw her, there had been no recurrence; but I think this may be expected, sooner or later.

Remarks.—The large growth appears to be made up of an enormously hypertrophied labium minus, as suggested by the whitish inner surface, and the pigmented outer surface. Sections of it show that it is chiefly made up of fibrous tissue.

The tendency of the disease in this case is towards hypertrophy combined with ulceration, and there has been recurrence after an apparently complete removal of the hypertrophied and ulcerated tissue. The general health of the patient seems to have been almost, or completely, unaffected by the local disease.

Dr. William Duncan reminded the Fellows that in the discussion on Dr. Matthews Duncan's paper on "Lupus of the Vulva," Mr. Jonathan Hutchinson expressed his opinion that the cases were syphilitic and not lupous. With this opinion Dr. W. Duncan strongly coincided, and he considered Dr. Lewers' case was one of hypertrophic syphilide, exactly similar to several he had under his own care; he asked if Dr. Lewers had put the patient under a course of strong antisyphilitic remedies.

Dr. Matthews Duncan was of opinion that the case was one of lupus, and had no resemblance to any syphilitic growth.

Dr. Lewers said that it would be in the recollection of the Society that when Dr. Matthews Duncan read his series of papers on "Lupus of the Vulva" it was admitted on both sides that the administration of antisyphilitic remedies would not decide whether the conditions in question were to be regarded as syphilitic or as the manifestations of a special disease, because late results of syphilis were often unaltered by these remedies. Dr. Lewers thought that no one would be justified in classifying the specimen shown as syphilitic (as Dr. W. Duncan had done) unless he had himself seen several times an exactly similar growth in patients who had undoubtedly suffered from syphilis. In Dr. Lewers' case there was not the slightest evidence of syphilis, either in the patient's history or in her physical condition. Taking into account her humble position in life, the probability would be that, if she had had syphilis, she would not have been so carefully treated from first to last as to have no trace of the disease about her. Moreover, she gave her history freely and unreservedly, and there was every reason to think that if she had suffered from any of the secondary effects of syphilis she would not have denied it. Dr. Lewers mentioned that an appearance identical with that seen in the case described in his paper is figured in Winchet's 'Diseases of Women' as elephantiasis of the vulva.

DECEMBER 4TH, 1889.

ALFRED L. GALABIN, M.D., President, in the Chair.

Present—35 Fellows and 4 visitors.

Books were presented by Dr. Cullingworth, Dr. Matthews Duncan, Dr. Frommel, Dr. Playfair, the Medical Society of London, and the Medical and Chirurgical Faculty of the State of Maryland.

Thomas Edward Parsons, M.R.C.S. (Wimbledon), and Arthur Henry Williams, M.A., M.B., B.C.Cantab. (St. Leonards-on-Sea), were declared admitted as Fellows of the Society.

The following gentlemen were proposed for election :— Robert J. Carter, M.B.Lond. ; Charles Plumley Childe, B.A., L.R.C.P.Lond. (Southsea) ; Edward Henry Douty, M.A., M.B., B.C.Cantab. (Cambridge) ; Harry St. Clair Gray, M.D., C.M.Glas. (Glasgow) ; T. Arthur Helme, M.D.Edin. (Manchester) ; Charles Henry James, L.R.C.P. Lond. ; Ernest E. Lewis, L.R.C.P.Lond. ; Chichester Gould May, M.A., M.B.Cantab. (Dublin) ; Godfrey Forrest Reid, M.D., Dublin (Orange Free State) ; John Frederick William Silk, M.D.Lond.; Charles Herbert Thompson, B.A., M.D., Dublin ; and Charles Percival White, M.R.C.S.

The President nominated the following gentlemen as auditors of the accounts for the year :—Dr. Boulton, Dr. Champneys, Dr. Amand Routh, Dr. Boxall, and Mr. Malcolm.

HÆMATOSALPINX AND PYOSALPINX.

By Wm. Duncan, M.D.

HYDROSALPINX.

By Wm. Duncan, M.D.

FIBRO-MYOMA AND ABSCESS.

By Wm. Duncan, M.D.

CYSTIC OVARIES AND HYPERTROPHIED FALLOPIAN TUBES.

By John Phillips, B.A., M.D.Cantab., M.R.C.P.

Dr. John Phillips had removed the above from a patient aged 25 years, single, who had been under the observation of her medical attendant for six years with metrorrhagia, menorrhagia, and dysmenorrhœa; during the past six months they had all increased, the pain being almost intolerable. On examination *per vaginam* there was felt a fixed fluctuating swelling, with some hard mobile bodies amidst its contents; the left ovary, enlarged and very tender, was also made out.

On opening the abdomen there was found a universally adherent cystic right ovary; on breaking down the adhesions a half-pint of grumous blood welled up into the wound, and four hæmatoliths of the size of a sixpenny piece were removed: one of them, shaped like a button, had

ulcerated its way almost into the peritoneal cavity. A glass drainage-tube was necessary for twenty-four hours. The patient made an easy and normal convalescence.

SPONGE TENTS.

By Aust Lawrence, M.D.

Dr. Aust Lawrence (Clifton) exhibited some specially prepared sponge tents. The tents were made from very fine sponge rendered aseptic by having been soaked in 1 in 2000 corrosive sublimate before being made up, and after they were made they were coated with a solution of corrosive sublimate (1 in 1000) in gelatine. This coating not only preserves the tent, but renders its introduction into the uterus very much easier than when not coated, as the point of the tent does not soften and turn as most tents are liable to do in their introduction. Tents prepared like this are very easily passed, and owing to the smooth surface a very much larger tent can be used, which of course gives a much fuller dilatation. Dr. Aust Lawrence considered the use of these tents in suitable cases and with proper precautions to be absolutely harmless, but he laid stress on the importance of absolute cleanliness in the details of manipulation.

SOME SPECIMENS OF OVARIAN TUMOURS.

By J. Bland Sutton, F.R.C.S.

1. A unilocular ovarian dermoid, occupying the oöphoron. The cyst equals in size a fowl's egg, and presents on its inner wall a patch of piliferous skin. In a previous communication to this Society I attempted to

show that dermoids of the ovary arose in the oöphoron, but increasing in size they early caused absorption of the paroöphoron. This specimen is instructive, for it is extremely rare to find the paroöphoron intact when a cyst has attained such proportions as in the present case.

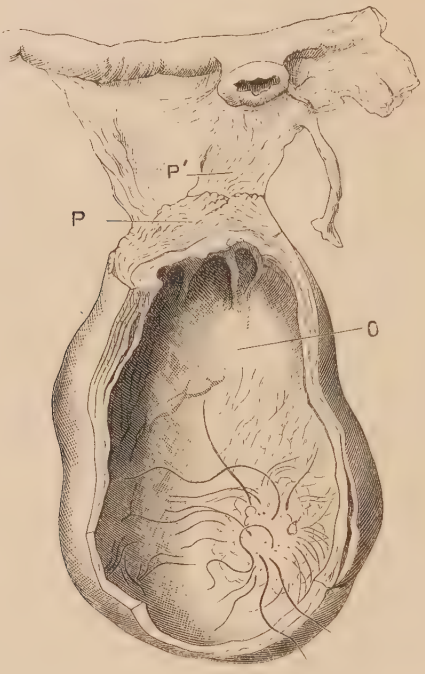

Fig. 1.—An ovarian dermoid. O. Dermoid. P. Paroöphoron. P'. Parovarium. Nat. size.

2. An ovarian tumour with the Fallopian tube, removed by Dr. Bantock. The tumour equals a cocoa-nut in size, and consists of two portions, as shown in Fig. 2. The smaller portion is a thin-walled cyst, with a patch of piliferous skin on its inner wall. The larger portion is nearly solid, and constitutes the most important and interesting part of the tumour. On section this presented the usual naked-eye characters of an ovarian adenoma, but when

FIG. 2.—An ovarian dermoid. H. A delicate tuft of lanugo-like hair; the sections from which Fig. 3 was prepared were taken from near its base. Nat. size.

examined microscopically it presented an interesting variety of structure, as illustrated in Fig. 3. The piece of tissue from which the sketches were made was taken from near the delicate hairy tuft marked H in the drawing, Fig. 2. I selected this spot because it contained a deposit of dark pigment. The following parts were crowded together in a piece of the tumour less than half an inch square :

(A) A developing tooth, with its enamel organ and dentine papilla ; running from the neck of the enamel organ upwards to the free surface, which represents the wall of a loculus, is a tract of cells representing the gubernaculum. Other developing teeth in a more advanced stage were seen in the same section, in which the centre of the enamel-organ was occupied by the typical stratum intermedium.

(B) This is a typical epithelial pearl, and consists of an encapsuled collection of epithelium. Here and there similar pearls are met with in which the central cells seem to have undergone transformation into horn. These pearls are instructive ; occasionally we find loose in the cavity of ovarian dermoids rounded bodies resembling the boiled lens of the eye of a fish, or a silver-coated pill. Such bodies are doubtless epithelial pearls which have been dehisced from the walls of the cyst.

(C) A portion of the wall of a loculus. It is lined by definite epithelium, arranged in a manner characteristic of epidermis of the skin. In one part of it two developing hairs may be seen, with rudimentary sebaceous glands appended to them. Near them is a small bay filled with epithelium. Should this be completely embedded, it would form an epithelial pearl.

(D) An ill-formed mass of glandular tissue, the acini of which are lined with a regular layer of columnar epithelium, whilst the acini are filled with a delicate form of connective tissue. Such a mass of glandular tissue is extremely puzzling ; it resembles equally a simple adenoma, a cancer, or an epithelial odontome. Dotted irregularly

throughout the specimens are sweat-glands seen in section, F.

FIG. 3.—A composite series of drawings showing the histological diversity of the solid portion of the ovarian tumour sketched in Fig. 2. A. Developing teeth. B. An epithelial pearl. C. Rudimentary hairs and sebaceous glands. D. Glandular tissue. E. A bay filled with epithelium. F. Sweat-glands in sections.

(E) Lastly, it is suggestive to think that the cluster of epithelium lodged in the bay E may become either an epithelial pearl, as in (B), or if associated with a papilla it could stand for an enamel organ; associated with a malignant tumour it suggests the birds'-nest of an epithe-

lioma, and is not unlike epithelial layers sometimes found in sebaceous cysts (formerly called cholesteatomata).

3. A tubo-ovarian cyst. A. M—, aged 43 years, was admitted into the Middlesex Hospital under my care. She had been suffering for two years from a tumour which occupied the right side of the pelvis, and extended into the abdomen as high as a line drawn across the belly at the level of the highest point of the iliac crest. The tumour was rounded, well defined, and elastic. *Per vaginam* a swelling could be detected low down in the pelvis, and presented all the clinical characters of a tumour occupying the right broad ligament.

The patient, though married for seventeen years, had never been pregnant, and her periods had of late been very irregular. Sometimes a menstrual period would last for a month, and not reappear for two or even three months.

On opening the abdomen I enucleated from the right broad ligament a cyst which contained three pints of clear fluid. The cyst was intimately associated with the Fallopian tube, which was removed with it. The left ovary and tube were adherent to surrounding structures, and it was deemed advisable to leave them. The patient's recovery was somewhat prolonged, in consequence of a hæmatocele which slowly formed in the broad ligament. Eventually she left the hospital in a very satisfactory condition, and has been able to report herself as in excellent health and strength.

On dissecting the specimen the Fallopian tube was found dilated and contorted ; its distal end communicated with the interior of the cyst by an oval aperture. The wall of the cyst near this opening presented a series of ridges continuous with similar ridges in the Fallopian tube.

It was clearly a tubo-ovarian cyst. The walls of the tube, near its junction with the cyst, were examined microscopically, but no lining epithelium could be detected ; it is probable that the epithelium had disappeared by

atrophy, induced by the stretching of the tube. It is a point of some importance, and one in which Dr. Griffith, in his elaborate paper on tubo-ovarian cysts, is silent, viz.

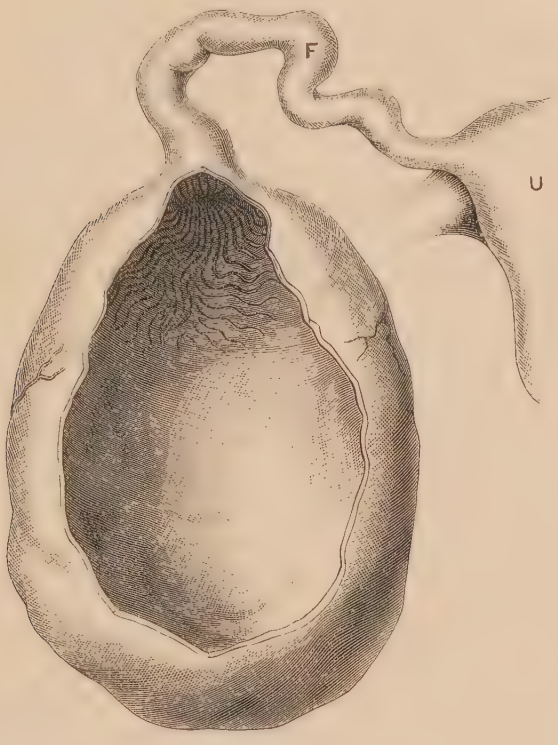

Fig. 4.—A tubo-ovarian cyst.
u. Uterus. f. Fallopian tube.

that the cyst lay between the layers of the broad ligaments. True ovarian cysts are outside this structure, and it is extremely difficult to account for this position of the cyst supposing it to arise in the ovary.

A CASE OF INVERSIO UTERI; REDUCTION; RECOVERY; REMARKS.

By J. Braxton Hicks, M.D., F.R.S.

(Received July 31st, 1889.)

I was called on January 22nd, 1887, by Dr. Buchan to assist in the reduction of an inversion of the uterus under the following conditions.

A primipara, aged 26, was delivered apparently naturally, but with rather free hæmorrhage following. The placenta came away without assistance, and she went on well till the third day, when, on rising to urinate, something "came down," appearing externally. Dr. Buchan was sent for, and recognising the accident, endeavoured to reduce the inversion, but found it impossible, having no anæsthetic. He therefore asked me to meet him. I found the uterus within the vagina, which it distended; it was soft, and had layers of coagula over portions of its surface. The patient was placed under chloroform with ether added, and I endeavoured, after compressing the uterus so as to reduce its bulk, to restore it by pressing the mass upward; but I was resisted by the cervical portion, which was firmly contracted. I used as much steady force as I thought could be borne by the vagina, supporting it by the hand externally placed, but without success. I then proceeded to return it by impressing the fundus, and having at hand a speculum with an obturator I pressed it against the inverted fundus, cupping thereby this part. This was gently and steadily pressed up, till by the hand placed externally I felt the fundus uteri gradually distending the cervical portion. The external hand made counter-

pressure on the now enlarging ring of the cervix, and thus in the space of ten minutes I found the major part of the uterus restored. I then withdrew the speculum, and introduced the obturator of a larger one, so as to give more room at the point of flexion. In another minute I was pleased to find the uterus in its normal condition. I again introduced the former speculum with an obturator, and left it within the cavity to prevent relapse. This was removed in a few hours, and the patient recovered without a bad symptom. There was no bleeding at all during the reduction or after.

Remarks.—Obstetric authors differ in the methods they recommend for treating recent inversion of the uterus. For instance, Dr. M'Clintock (' Diseases of Women ') objects to fundal replacement, pointing out a mechanical reason, and recommending the plan of Dr. Montgomery, namely, " replacing that part first which came down last."

Dr. Aveling following M'Clintock, in his ' Inversion of the Uterus,' 1886, says, " Fundal reposition may be attempted by pressing on the fundus with the object of driving it through the cervix. It is the most unscientific method of replacing an inverted uterus, as it demands unnecessary dilatation of the neck." . . . "Lateral reposition is a very effective plan of reducing recent inversion ; cervical reposition is the mode of reducing chronic inversion." In recent cases he recommends the plan of lateral replacement ; the very worst plan is the fundal method.

Lusk, however, recommends the fundal method, and gives a case in which it answered very well, but speaks approvingly of the lateral (Noeggerath's) plan.

Barnes (' Obstetric Operations ') recommends fundal pressure for the immediately recent cases, but where the os has become contracted, then to grasp the portion just below with the hand, and push the mass slowly and firmly against the constriction, following up the uterus as it recedes. He points out the state of the os as being an important factor.

The above extracts show that there is much diversity

in the recommendations as to treatment of cases of recent inversion. The condition of the os and inverted cervix doubtless is the chief cause of this difference. With a relaxed os and cervix, restoration is easily accomplished by pressing upward the whole mass, so that reduction commences with the cervix. I have published a case where six days after the accident I was able very easily to restore the uterus to the natural state. But when the cervix is firmly contracted, it is more or less difficult, if not impossible, to effect this, and then other methods must be tried. Notwithstanding that fundal reposition has been condemned as unscientific, yet in this case it succeeded, I may say easily, while the other did not, owing to the firmly contracted state of the cervix, and the bulkiness of the uterine mass. The speculum, with its obturator, being smaller than the knuckles or fist, seems more convenient for fundal replacement; and if the obturator be employed only, the objection of the duplication (if it has any reality) is done away with. But can this objection be sustained? In any case the uterine equator must pass the cervix: if the cervix be relaxed, it passes easily; if contracted, with difficulty. When in fundal replacement the fundus passes the cervix there is no duplication, neither when the equator passes is there any. By this time the restoration is mainly accomplished, and all that the rest has to do is to follow suit. In recent cases, as the lower part of the uterus has within a few days allowed a full-term child to pass, the principal point is to get something within the cervix to gently dilate it, which in this case could be watched by the outside hand with the greatest clearness. The cervical method puts considerable strain on the vaginal tissues, and the same might be said of the fundal pressure as regards the uterine walls. But counter-pressure on the ring through the abdominal walls much facilitates either method.

Dr. Horrocks asked if the uterus was completely inverted or whether a small portion of the cervix remained unchanged,

because this might make a considerable difference in the success of the method of treatment adopted. If the uterus was completely inverted probably the "fundal method" of replacement might be better than the other, and there would not be the same objection to the method, because the thickness passing through the inverted os would not be greater than in the ordinary method of restoring the uterus.

Dr. Griffith noticed that the case was reported as being one of spontaneous inversion, and he wished to ask if any Fellow of the Society had himself actually witnessed inversion of the uterus occur in connection with the third stage of labour, under circumstances which could be called absolutely "spontaneous."

ON CLOSURE OF THE OSTIUM IN INFLAMMATION AND ALLIED DISEASES OF THE FALLOPIAN TUBE.

By Alban Doran.

(Received September 26th, 1889.)

(*Abstract.*)

The author, in this communication, dwells on the frequency of closure of the ostium in salpingitis; but the obstruction is often temporary. Obstruction of the uterine end is due to swelling of the mucous membrane or to the development of "Chiari's bodies" from that membrane. Permanent closure of the tube is almost synonymous with closure of the ostium. Salpingitis and perimetritis are the causes of closure of the ostium. Three essential factors in relation to the subject are considered at length. 1. The nature of the ostium and its fimbriæ. 2. The nature and varieties of salpingitis, and also of perimetritis as far as it affects the tube. 3. The precise manner in which the ostium is closed in perimetritis and salpingitis. In adhesive perimetritis the fimbriæ of the tube are bound down by bands, which thus obstruct the ostium. In salpingitis the ostium is obstructed, incompletely at first, by the swelling of the mucous membrane which involves the fimbriæ; but permanently in bad cases by great infiltration of the submucous tissue and middle coat, which swell over the ostium and cover in the fimbriæ. The perimetritic and salpingitic varieties of closure of the ostium, often blended, are demonstrated by specimens and diagrams. The question of timely conservative operations on obstructed non-suppurating tubes is discussed. Dr. Skutsch's "salpingostomy," where a small piece of the tube is excised, appears to be a promising step in that direction.

Temporary or permanent closure of the Fallopian tube at the ostium is certainly the rule in salpingitis, and in perimetritis in the immediate neighbourhood of the ostium. In appendages removed for old inflammatory disease of the ovary the tube is often found thickened and tortuous, whilst the ostium appears to be open. Nevertheless the canal is more or less obstructed by the swelling of its mucous membrane. On the subsidence of this inflammation this source of obstruction would, no doubt, disappear in similar cases where the tube is not removed, and where the inflammatory process, so far as it affects the tube, proceeds no further. In this manner must end many mild cases of salpingitis, cases where the symptoms are hardly severe enough to cause more than a trifling amount of discomfort to the patient. The uterine end of the tube is very prone to obstruction, through swelling of the mucous membrane in salpingitis, just as the nasal fossæ are obstructed in coryza and influenza. The tumefied mucous coat bulges freely when the walls of the diseased tube are cut through. That this swelling, and with it the obstruction, should disappear together with the inflammation is not surprising. Stricture of the uterine end of the tube, after the manner in which the ostium is so often closed, is impossible owing to the anatomical characters of the part; though a perimetric band pressing on the tube near its uterine end may obstruct the canal at that extremity. Chiari's bodies,* which may cause obstruction, are results of salpingitis. There is no evidence that they fail to undergo atrophy as the inflammation subsides.

With the ostium the case is different. When it is closed, changes more serious and more frequently permanent than swelling of the complicated mucosa occur, although that swelling is probably constant. Hence closure of the tube is all but synonymous with closure of the ostium. Exceptional cases where the ostium remains open may be dismissed. I dwelt upon this rare condition

* "Zur pathologischen Anatomie des Eileiterkatarrhs," 'Prager Zeitschrift für Heilkunde,' vol. viii.

in a communication published in a recent volume of the Society's 'Transactions.'* Salpingitis and its complications must not be confounded with hæmatosalpinx, where the ostium is often not only open, but also dilated.† Tubal gestation usually causes sufficient inflammation to seal up the ostium; but in a recent case I found the ostium open, and the fimbriæ almost normal.

The cause of closure of the ostium is salpingitis or perimetritis. In cases of solid and cystic tumours of the ovary and uterus it is never closed unless one or both of these conditions be also present; otherwise the tube is elongated and stretched, but not obstructed. In tumours of the parovarium and broad ligament this stretching of the tube is extreme. The fimbriæ are involved, the ovarian fimbria attaining a length of two, three, or four inches—indeed, I have seen it even longer. The ostium, so far from being closed, is abnormally patulous.

In relation to the subject of this paper, some of the pathological changes occurring in salpingitis and perimetritis must be carefully considered. By salpingitis I mean inflammation of the tube; by perimetritis I wish to signify inflammation of the peritoneum in its neighbourhood. Three essential factors must be duly considered in detail.

1. The nature of the ostium and its fimbriæ.

2. The nature and varieties of salpingitis, and also of perimetritis as far as it affects the tube.

3. The precise manner in which the ostium is closed in perimetritis and salpingitis.

When the first and second are clearly understood, the third factor, the subject of this communication, is not difficult to explain. Before they are understood we cannot hope to attempt the conservative surgical treatment of diseased tubes. The ultimate aim of surgery in this

* "Papilloma of the Fallopian Tube, and the Relation of Hydroperitoneum to Tubal Disease," vol. xxviii, 1886, p. 229.

† See "Report on Dr. Playfair's Specimen of Small Ovarian Cyst and Hæmatosalpinx," in the Society's 'Reports,' vol. xxxi, p. 162.

respect should be the removal of the obstruction without amputation of the tube.

What is the ostium, and what are its fimbriæ? Dr. Arthur Farre's classical article in Todd's 'Cyclopædia' contains a description of the naked-eye appearances of the tube which has never since been surpassed, and a series of drawings of that structure which could not be excelled. The manner in which the serous coat joins the mucous membrane of the tube, the transitions of the plicæ of the tubal canal into the fimbriæ outside the ostium, and the precise nature of the ovarian fimbria, are described and depicted with equal fidelity. To Richard, however, must be given the credit for the illustrations of the tube which adorn Dr. Farre's admirable monograph. Dr. Farre did wisely in selecting such woodcuts as Figs. 404, 405, 407, and 408, for they demonstrate what Richard had already discovered, the great variety in the development of the fimbriæ, especially the ovarian fimbria.

Nevertheless we must not rely on literature and art alone, even when sanctioned by so high an authority as Dr. Farre. On that principle I have made a fresh series of dissections, and taken sketches of them, or caused drawings to be prepared by Mr. Lewin; for Richard's woodcuts, especially Fig. 405 in Dr. Farre's monograph, err through being a trifle too diagrammatic.

I made the sketch, Fig. 1, from a well-developed tube attached to an ovary which was removed as it showed signs of cystic disease. The opposite ovary had become a large cyst. The tube was split open and sketched under water when fresh; for alcohol causes the plicæ and fimbriæ to become pale and shrink. The plicæ are, as Richard long ago demonstrated, elevated and ineffaceable folds of mucous membrane, like the valvulæ conniventes, excepting that they run in the long, not the short, axis of the canal in which they lie. As they pass beyond the ostium they become larger and multiply; sometimes two fimbriæ formed by division unite again. After close inspection of many hundreds of specimens I have come

FIG. 1.—Ostium of normal Fallopian tube laid open, showing the continuation of plicæ into fimbriæ, and the dichotomous division of the fimbriæ. The ovarian fimbria is well formed.

FIG. 2.—End of tube with ostium laid open. The plicæ are prolonged as in Fig. 1, and continued to the end of the ovarian fimbria.

to the conclusion that this multiplication is mainly by dichotomous division. I have indicated the division in Fig. 1; it is best seen near the free extremities of the fimbriæ. I admit that a plica sometimes appears to spring up from the mucous membrane beyond the limits of the ostium. This condition, however, probably represents atrophy of a portion of an intratubal plica behind it, for a plica of this class, ending bluntly at or behind the ostium, is generally to be found in a straight line with a plica which appears to lie entirely outside the ostium. Careful examination of the grooves between the plicæ will enable the observer to trace the particular intratubal plica to which each fimbria belongs. There is another order, so to speak, of secondary plicæ which spring from the sides of the primary plicæ forming the fimbriæ. They give rise to the arborescent appearance seen in microscopic sections of the tube at the ostium. On the other hand, the two divisions of a primary fimbria may join again, as is often seen above the ostium within the tubal canal.

In Fig. 2, where the tube has also been laid open for some distance above the ostium, the extension of the plicæ into the fimbriæ is further demonstrated. In Figs. 1 and 2 it is seen that the plicæ are prolonged on to the ovarian fimbria. Fig. 3, a fine sketch by Mr. Lewin, shows extreme subdivision of the plicæ beyond the ostium. Some of the fimbriæ are prolonged as slender, thread-like bodies. These long filaments, together with true accessory fimbriæ springing from the broad ligament, play a conspicuous part in some cases of perimetritis and salpingitis, binding down the tube to neighbouring organs.

The anatomist can readily understand why, when the plicæ pass outside the ostium, they attain large dimensions, blossoming into fimbriæ. No longer cribbed and confined within the firm and narrow walls of the tube, they expand freely in the peritoneal cavity. A similar condition is seen in accessory ostia. The plicæ bulge freely through these abnormal orifices (see Fig. 4; see also "Malformations of the Fallopian Tube," 'Trans.

FIG. 3.—A specimen similar to Figs. 1 and 2. Some of the fimbriæ are prolonged so as to form filamentous structures.

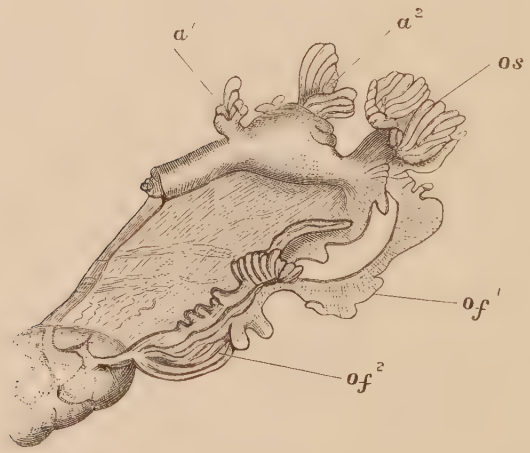

FIG. 4.—End of a tube with two accessory ostia, a^1, a^2, through which the plicæ bulge, forming fimbriæ as at the normal ostium (*os.*) The ovarian fimbria is reduced to a thin band above (of^1), and highly developed below (of^2).

Obst. Soc.,' vol. xxviii, 1886, Fig. 5, p. 173). This bulging of the plicæ is important in relation to "salpingostomy." When an artificial opening is made and the tube collapses, the plicæ may possibly bulge out of it, after a time, as they bulge from accessory ostia.

The ovarian fimbria, which runs along the free border of the broad ligament to be attached to the surface of the ovary, being placed in the best position for free development, is often large and conspicuous. There is a conspicuously well-developed variety of the ovarian fimbria, bearing three, four, or more secondary plicæ which are sometimes continuous with intratubal plicæ, as in Fig. 2, sometimes entirely cut off from the tube, as in Fig. 4. The peritoneal attachment may atrophy more or less completely, so that the ovarian fimbria forms a loop (Fig. 4). In its commonest variety the ovarian fimbria forms a fringe like an elongated leaf, the peritoneal attachment usually running close to one of the free borders of the fimbria (Fig. 5). A third or atrophic type of ovarian fimbria

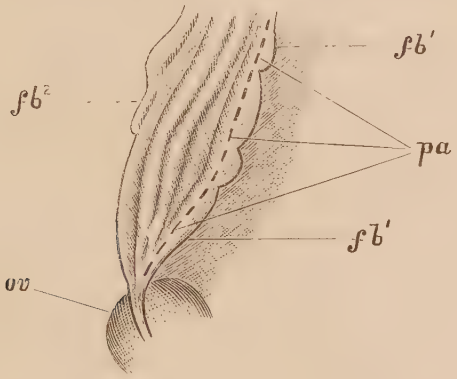

FIG. 5.—An ovarian fimbria moderately developed; about six times natural size. The plicæ are distinct but low. The dotted lines, *pa*, represent the attachment of the edge of the peritoneum, which lies close to one (fb^1) of the free borders (fb^1, fb^2) of the fimbria. *ov*, ovary.

is not rare. The fimbria is reduced to two or three wattles lying along a groove in the border of the broad

ligament; a double row of these wattles is often seen on the surface of a thin-walled broad ligament cyst between the ostium and the ovary. Each row may be separated by the distance of half an inch when the cyst is full, and between them the plicæ of this fimbria often form long red streaks. The ovarian insertion of the fimbria forms a cord-like structure, not always devoid of the evidence of plicæ.

As Müller's duct, originally closed, undergoes cleavage to form the ostium, the ovarian fimbria represents the opened-out canal of the duct along the line of cleavage. The liberated plicæ bloom into fimbriæ in the manner already indicated. A reversal of this process takes place when the ostium is closed.

On inspecting the tube sideways its peritoneal coat is seen to end abruptly along a line corresponding to, or rather representing, the ostium. This line runs obliquely from above downwards and outwards, ending inferiorly at the beginning of the ovarian fimbria. The outer borders of the primary plicæ forming the fimbriæ are attached to this line of peritoneum. In rare instances, as Farre has already noted, the peritoneum is prolonged on to the base of a fimbria for some distance. This relation of the peritoneum to the fimbriæ and ostium is important to understand before we study the closure of the tube in disease. It will be shown further on how the swollen fimbriæ, in the early stage of salpingitis, project abnormally beyond the ostium, and how, later on, the walls of the tube, infiltrated with inflammatory products, bulge over the fimbriæ along the line where the serous coat ceases.

The natural relations of the fimbriæ to the ovary will presently be discussed.

The normal characters of the fimbriæ which surround the aperture termed the ostium having been considered, the two diseases, perimetritis and salpingitis, which so often cause the closure of the ostium, must next be taken into account.

By perimetritis I signify what general pathologists

would term pelvic peritonitis, and what precisians among specialists might prefer, as far as the subject of this paper is concerned, to call perioöphoritis or even perisalpingitis. I have selected the expression perimetritis, as employed so conveniently by Dr. Matthews Duncan. Perimetritis, as here understood, may be either an anatomical district, so to speak, of a wide area of generalised adhesive peritonitis, or an absolutely localised adhesive inflammation of the peritoneum, arising from various causes. I limit the term simply to the adhesive form. This perimetritis may be secondary to any uterine disease, to oöphoritis, to salpingitis, or to inflammation of a pelvic cyst or solid tumour.*

Adhesive perimetritis binds down the tube to the ovary, crumpling up, as it were, the mesosalpinx or portion of broad ligament between those structures. Effacement of the mesosalpinx in this manner is of necessity due to perimetritis, even when that disease is secondary to salpingitis. This fact must not be forgotten. Another form of effacement of the mesosalpinx will presently be described ; it is essentially the direct result of dilatation and hypertrophy of the tube. In perimetritis thin but dense bands may bind down the tube at one or more points, causing more or less complete obstruction. Accessory fimbriæ often play a share in this process. Most pertinent to the main question, however, is the fact that perimetritis often closes the ostium by direct means. A band of adhesion grows over the fimbriæ or holds them down. Of this complication more will be said.

As to salpingitis, a full description of its different varieties would be out of place. I have examined over a hundred diseased tubes, and find that the varieties of salpingitis, as described by Martin, Orthmann, and others, often but not always represent early or late stages of the same disease. The mucous membrane is, as a rule, first involved in the inflammatory process which extends to

* I have seen, especially in one case, very old perimetritic deposits covering all the pelvic viscera, yet neither tube was obstructed.

deeper structures. Yet an almost purely interstitial salpingitis, where the tube is thick, hard, yet unobstructed, certainly exists, and so little is the mucous membrane involved that the disease in question may be considered as primary. Hydrosalpinx and pyosalpinx are complications secondary to closure of the tube.

In salpingitis the inflamed mucous membrane becomes swollen, hence the plicæ appear thickened very early in the disease. The fimbriæ are soon involved in this process, and often seem as though half strangulated at the ostium. This appearance, very conspicuous at operation, is rapidly destroyed by the action of spirit. Lymph exudes freely from the inflamed surface, forming bands which bind fimbriæ together. This suggests a delicate pathological subtlety, as to whether these bands be salpingitic or perimetritic. Putting aside technical terms, it may be said that the effusion of organised lymph is due to inflammation of the tube at first, for it is seen in the plicæ within the tube, protected from perimetritic changes, as well as in the fimbriæ. As this process, however, goes on in a region where an inflamed mucous surface opens on to a serous membrane, the latter must soon become involved, throwing out organised lymph. This swelling and semi-strangulation of the fimbriæ cause more or less obstruction, never permanent unless complicated by conditions which will presently be described. Even in mild cases of catarrhal salpingitis this swelling is never entirely absent,* hence more or less temporary obstruction of the ostium must occur.

Within the tube yet another change is observed in salpingitis of more or less severity. The submucous tissue is involved, it becomes œdematous. The swelling extends more or less to the connective tissue of the muscular coat and to the subserous coat. This represents the "inter-

* Here the observer must be reminded that the tube must be examined in the subject in order to see this swelling. After removal of the tube, the blood draining away, the engorgement of the fimbriæ disappears. For reasons given above, spirit preparations throw no light on this subject.

stitial salpingitis" of Martin and Orthmann. The inflammatory infiltration is especially important at the line of demarcation between the peritoneum and the fimbriæ at the ostium. Here, as will presently be further demonstrated, it causes the most essential and permanent form of closure of the ostium. The process also accounts for the disappearance of the fimbriæ.

In relation to occlusion of the tube two more subjects are worth consideration, namely, the approximation of the occluded and distended tube to the ovary and the natural and the abnormal relations of the ostium to the same organ.

The manner in which the tumour is approximated to the ovary by perimetritic adhesions has been described. The crumpling up of the mesosalpinx is easily demonstrated. That portion of the broad ligament may be unrolled, as it were, when the specimen is examined by the pathologist, if it has not been already torn away from its adhesions to the ovary during the process of removal of the parts at operation or after death. Salpingitis with obstruction brings the tube and ovary into more intimate relations. The distended tube opens up the layers of the mesosalpinx until its walls touch the ovary, just as a burrowing ovarian cyst opens up the same serous layers until its walls touch the tube. A broad ligament cyst burrows in the same manner till it touches the tube above and the ovary below. This process, which may be termed the burrowing of the tube, can be readily demonstrated on an ordinary hydrosalpinx. Monprofit, who has described the process with great accuracy,* terms it *le dédoublement du mésosalpinx*.

The tube does not float above the ovary in the living subject, with its fimbriæ mostly pointing upwards, backwards, and forwards, the ovarian fimbria running directly downwards. That position is purely diagrammatic. The tube forms a high arch over the ovary, which lies in the pelvis with its long axis not horizontal but more or less oblique, according to the position of the uterus. The uterine half of the tube rises, the outer half descends and

* 'Salpingites et Ovarites,' Paris, Steinheil, 1888.

bulges freely behind and external to the ovary. Thus the ovarian fimbria runs upwards towards its insertion on the ovary. The outer aspect of the ovary is covered by the other fimbriæ. Those which are represented in diagrams as the highest are naturally the lowest. The ostium looks inwards towards the ovary. Hence, when obstructed by the special changes which occur in salpingitis, it is found more or less closely applied to the swollen ovary. The mesosalpinx, passing across the arch made by the tube, forms a kind of veil or cover to the upper part of the ovary, to which it may often be seen adherent by perimetritic bands.

Were the tube really placed in its diagrammatic relations, it would assume a very different appearance when obstructed and dilated. It would form a pyriform tumour, the narrow end being close to the uterus, the broad end looking upwards and outwards. The ovary would be pulled up by the ovarian fimbria. The reverse change of position actually occurs. The obstructed extremity of the dilated tube presses against the ovary; in extreme dilatation it coils round the outer aspect of that organ, and may even extend downwards and inwards below it.

This bulging of the outer end of the tube around and even below the ovary is the cause of great confusion in many cases of tubal gestation, where the changes in the tube outside the fœtal cyst are essentially salpingitic. The fœtus appears to lie far from the tube, apparently in or outside the ovary, when in reality it lies within the outer part of the tube. This fact must not be forgotten when we read accounts of "undoubted ovarian gestation." The relations of the fimbriæ are best displayed when the fellow-ovary to an ovarian cyst is inspected in the live subject, an inspection I have had the advantage of noting several hundred times. The subject is fully demonstrated in Prof. His's "Lage der Eierstöcke" ('Archiv für Anat. u. Phys.,' Anat. Abtheil., 1881).

After the above facts relating to the tube and its diseases are recognised, the precise manner in which the

ostium is more or less permanently closed is easily explained. It is occluded either by bands of lymph which cover in the fimbriæ, or by changes within the walls of the tube, which cause much swelling, so that the walls bulge and close in over the fimbriæ. The first process is essentially a part of the pathological changes constituting perimetritis. I shall therefore term it, for the sake of simplicity, "perimetritic closure of the ostium." The second process is a part of the condition known as salpingitis, and may be termed "salpingitic closure of the ostium." As perimetritis and salpingitis are often combined, both generally take a share in closing the ostium.

Perimetritic closure is the simpler form. A little deposit covering the delicate fimbriæ as they lie on the surface of the outer aspect of the ovary is sufficient to bind them down, and then the ostium necessarily becomes closed as soon as the deposit is organised. In operations for chronic disease of the appendages the early stage of the process is often observed. Sometimes, on scraping away the bands of lymph, the fimbriæ come in sight, well-formed, succulent, and bright red, being full of blood. In that case little or no salpingitis is present.

The accompanying sketch (Fig. 6) represents an extremely typical example of pure perimetritic closure of the ostium of the right tube. The fimbriæ, well formed and exuberant, were stuffed into a deep pouch on the outer side of the ovary, formed by a stout band of membrane. In the drawing, the fimbriæ are displayed as they appeared after I pulled them half out of the pouch. A black bristle passes out of the ostium into the pouch. Before the parts were disturbed the ostium lay deep in the pouch, looking towards the ovary, and of course completely obstructed. The tube was tortuous, and kinked by some firm perimetritic bands. The patient was married and thirty-six years of age; her youngest child was over four years old. For a year she had been subject to severe menorrhagia, ending in incapacity for work, and great pain during an action of the bowels. The appendages

FIG. 6.—An ovary and tube, showing obstruction of the ostium by perimetritic deposit which forms a deep pouch. The fimbriæ have been partly pulled out of the pouch. A bristle passes into the pouch out of the ostium.

FIG. 7.—Complete obstruction of the ostium, the result of salpingitis. The end of the tube has been detached from the ovary below and the ostium forcibly opened; a bristle passes out of its orifice. The tissues of the tube have swollen over the ostium, completely concealing the fimbriæ, excepting the ovarian fimbria which is seen below the bristle. Behind and above the bristle are perimetritic bands, which must not be mistaken for fimbriæ.

were removed by Dr. Bantock in March, 1888. The right, represented in Fig. 6, lay high in the hypogastrium, and were not bound to any adjacent structure. The left tube and ovary were adherent to the peritoneum deep down in Douglas's pouch.

Salpingitic closure of the ostium is well displayed in Fig. 7. At a glance its distinction from the perimetritic form becomes evident. The end of the tube has been peeled off the ovary, to which it adhered, and lifted upwards so as to display the obstruction. No fimbriæ can be seen excepting the ovarian fimbria. A bristle occupies the ostium, which has been forced open. Around the bristle the tubal walls, extremely thickened, bulge freely. The fimbriæ now lie within the tubal canal, as may be seen in Fig. 8 ; in fact, they have been reduced to plicæ.

FIG. 8.—An obstructed and dilated tube laid open. The fimbriæ are seen, entirely included within its cavity.

They have not retracted—indeed, they could not retract, like the tentacles of a sea-anemone ; the infiltrated tubal walls have closed over them. Before the parts were disturbed in Fig. 7, the bulging extremity lay against the outside of the ovary ; the œdematous ovarian fimbria

running upwards. In more advanced cases that fimbria becomes reduced to a thin band. Perimetritic bands are seen on the surface of the tube in Fig. 7,* but they take no direct part in closing the ostium. The patient, also under the care of Dr. Bantock, was twenty-three years of age; the symptoms were very similar to those in the last case, whence Fig. 6 was taken.

The next drawing, Fig. 8, shows the position of the fimbriæ in salpingitic closure of the ostium. The external appearances resembled those in Fig. 7. Part of the wall of the tube has been cut away, displaying the distended canal. The remains of the fimbriæ are seen lying close to the side of the ostium. They are continuous with the plicæ, or rather are reduced to plicæ through lying within the tube, just as plicæ become fimbriæ when they protrude beyond an accessory ostium. The pressure of the fluid contents of the distended tube has caused them to atrophy.† This condition, whether it occur in salpingitic or perimetritic closure of the ostium, must be taken into account in relation to conservative operations on diseased tubes. If the plicæ and fimbriæ be destroyed, it is hard to see how the tube can ever become available for its functions. If the plicæ and fimbriæ reappear after the obstruction to the tube has been relieved, we may reasonably hope that the tube may become as sound as before the earliest onset of salpingitis. The inner wall of a long-distended tube generally consists of a glossy cicatricial tissue. This does not offer a favourable prospect for the restoration of the mucosa. Yet the epithelium is not so rapidly destroyed as the observer might at first be led to believe. In a pair of tubes greatly dilated and disused for many years I found papillomata covered with well-formed columnar epithelium,‡ nor, I find, is the epithelial investment of the mucosa always absent in a very tense hydrosalpinx.

* One such band lies close behind the bristle, and must not be mistaken for a bunch of fimbriæ.

† Simple stretching of the tubal wall cannot efface the plicæ.

‡ See 'Trans. Path. Soc.,' vol. xxxix, pl. xii, fig. 3.'

The natural tendency of an obstructed tube is doubtless towards cure by relief of the obstruction, but the liability of the patient to repeated attacks of pelvic inflammation too often prevents cure in this manner. The tube being spoilt, in the sense above indicated, it tends to undergo changes such as I have described in two recent communications to the 'Transactions of the Pathological Society,'* Uniform cystic degeneration of tube and ovary is the typical ending of chronic disease of the appendages, but surrounding complications are infinite, and interfere with the steady reduction of tube and ovary to a double or even single cyst. It is clear that in advanced stages of tubal disease where the ovary is thus disorganised the tube is spoilt; indeed, if it could be restored to its functions it would be useless.

We must lastly consider the chances of restoring the tube to its uses before it is spoilt. I have witnessed operations where the peritoneal cavity has been opened, and diseased tubes freely handled, the fimbriæ being carefully inspected as the best landmarks to guide the operator in distinguishing the relations of the parts much confused by disease. In each of these particular cases the surgeon, fearing to remove the tubes, closed the abdominal wound, and the patient made a good recovery, declaring herself cured long after the operation. In some of these instances the cure may have been due to thorough (though hardly intentional) opening of the ostium, no perimetritis or salpingitis following the operation so as to close the ostium once more. Still, evidence on this point is very doubtful, for there are many sources of fallacy. The freedom from former bad symptoms after the operation does not, in these cases, necessarily prove that the tubes have been restored to their functions, for these good results often follow total removal of the tube, and sometimes ensue when the tubes are left absolutely untouched. The incomplete or conser-

* "A Pair of Chronic Inflamed Uterine Appendages, illustrating the Development of Tubo-ovarian Cysts," vol. xxxviii, p. 241; "Papilloma of both Fallopian Tubes and Ovaries," vol. xxxix, p. 200.

vative operation above noted leaves too much to chance, for the breaking down of adhesions around the ostium is likely to cause enough irritation to set up fresh inflammation, which would rapidly seal up the ostium again. The dangers of any incomplete operation are considerable, even in simple cases of recent obstruction. In pyosalpinx no such proceeding could be justified. Lastly, the pains and dangers to which the patient is exposed in diseases of the tube may not be entirely due to tubal obstruction.

The draining of a pyosalpinx through an abdominal incision may prove satisfactory in some cases, but it does not restore the tube. The most promising method of restoring an obstructed, non-suppurating tube to its functions is perhaps that suggested by Dr. Skutsch, of Jena, and carried into effect by him in one case with fairly satisfactory immediate results. He has devised an operation which he terms "salpingostomy." It was described before the third meeting of the Deutsche Gesellschaft für Gynäkologie at Freiburg in June, 1889 (see 'Centralblatt für Gynäk.,' No. 32, 1889). He operated upon a sterile patient, aged thirty-eight, with moderate dilatation of both tubes, which is said to have caused great pain, the ovaries and uterus being apparently free from disease. Some of the fluid contents of each tube were first withdrawn by means of a Pravaz syringe, and found to consist of clear yellow serum free from pus. The ostium was then laid open, the fluid allowed to escape, and an oval piece of the wall, about one square centimetre in size, cut away. The mucous membrane and serous coat were united along the margin of the artificial aperture by fine silk thread. Lastly, a sound was passed through the aperture along the tubal canal into the uterus. Convalescence was uninterrupted. "From the day of the operation forward the woman was free from pain."

The principle of salpingostomy is sound, and should the plicæ be restored through the relief of tension, it is highly probable that those near the artificial opening would ultimately bulge and form fimbriæ, just as is seen, as already

described, in accessory ostia. Dr. Skutsch recognises the dangers of the operation and the necessity for further experience. Its benefits must be restricted to a small number of cases where alone it can be justifiable. The stage of salpingitis where it can be performed can hardly be diagnosed excepting by opening the peritoneum with a view to more radical measures if necessary.

Dr. Horrocks spoke of the importance of the paper as an original contribution to the pathology of a part of the body about which we wanted more light. He pointed out that the orifices of the body, mouth, lips, tongue, pharynx, anus, rectum, vulva, vagina, cervix, where most friction took place, were more affected pathologically than other parts, such as the general surface of the skin, layers of muscle, &c.; that the ostium abdominale was unique, in that it was an orifice where a mucous membrane became continuous with a serous membrane. Moreover, it was a very tiny opening, and had to catch and transmit the ovum as it came out of the Graafian follicle. *A priori*, one might expect to find frequent pathological changes about this orifice; and, considering its minuteness, it was almost a wonder it was not more frequently obliterated. He thought Mr. Doran's classification a good one, but whilst admitting the not infrequent origin of perimetritic inflammation from a salpingitis, due perhaps to gonorrhœa, or some uterine cause, yet he thought the starting-point of inflammation was more frequently in the ovary. In Figs. 7 and 8 he did not quite see how Mr. Doran proved that the closure of the ostium was due to salpingitis, and not to perimetritic adhesions outside the tubes.

Dr. Rutherfoord considered Mr. Doran's paper a very valuable one, as it demonstrated the different ways in which the tubes become occluded. He thought it possible the paper might help to explain the occurrence of those fringes which were occasionally found floating freely in tubo-ovarian cysts. It seemed to him the fimbriæ, which were contained within a tube owing to salpingitic swelling and closure, might be carried into the ovarian cyst when the two cavities opened into each other, especially if the opening occurred from the side of a distended tube. In salpingitis the fimbriæ generally became retracted, and in some cases completely inverted, though he imagined complete inversion to be rare. He had met with such a condition two or three times, but the fimbriæ were generally thickened and somewhat adherent to each other. Mr. Doran's specimen, No. 8, was very fine, and showed the delicate fimbriæ completely inverted, hardly thickened, and more or less distinct from each

other. Such a specimen he had not yet met with. The classification into salpingitic and perimetritic closure was very good and simple, but in the majority of cases Dr. Rutherfoord thought the inflammatory process started from the tube, which was itself only secondarily infected.

Mr. Alban Doran, in reply to Dr. Horrocks, expressed his belief that in the majority of cases disease of the tube spreads from below, that is, from the mucosa of the vagina and uterus, the genital tract bearing poisonous material developed in leucorrhœal, gonorrhœal, and lochial discharges. Nevertheless he admitted that infection might travel to the tube by another path; in other words, inflammation of the ovary might set up salpingitis. Mr. Doran maintained that Figs. 7 and 8 were very fine examples of salpingitic closure of the tube, although perimetritis was also present. The dilatation in Fig. 8 was, of course, secondary to the closure of the tube, and caused the walls to become thin, although at first thickened by inflammation. In reply to Dr. Rutherfoord, Mr. Doran maintained his theory that tubo-ovarian cysts generally represented a very late degenerative change in chronic disease of the tube and ovary. He admitted, however, that in rare instances a tubo-ovarian cyst might represent a congenital malformation, as Dr. Griffith and Mr. Sutton appeared to believe.

NOTES OF A CASE OF HÆMATEMESIS IN A NEWLY BORN INFANT.

By H. C. Hodges, L.R.C.P.

(Received October 7th, 1889.)

From the comparative rarity of these cases, and the still greater rarity of their recovery, I hope that the account of a case which occurred under my father's care may be of interest, more especially as it seems to throw a possible light upon other cases.

On April 23rd, 1888, Mrs. N—, wife of a clergyman, was delivered of her third child at 5 a.m., after a perfectly natural and somewhat easy labour. Both mother and child were left apparently quite well at 7 a.m.

At 11 a.m. came a very urgent message to go over at once—they lived four miles away—as the child "had hæmorrhage."

My father went, expecting to find that the ligature of the cord had become loose or insecure, and was surprised to find the child blanched and with very faint pulse, and all the surrounding clothes, which had by that time been removed, saturated with bright blood which the child had vomited.

Fortunately the nurse was a woman with a large share of common sense, and, moreover, had seen a similar case—which ended fatally—several years before, and she had done everything possible for the arrest of the hæmorrhage. The child had been put to the breast without result, and was troubled with constant hiccough. It was ordered to be kept absolutely quiet, and given ten minims of hazeline every two hours.

I saw the child at 7 p.m., and found it improving. No further hæmorrhage, but about a table-spoonful of blood-stained mucus was vomited at 5.30 p.m. Nothing since. Hiccough constant, but not so severe as in the morning.

One rather copious evacuation containing blood, besides the ordinary meconium.

There seemed to be slight lividity of the skin of the left ear, but no discharge. Treatment continued.

24th.—General condition improved. Hiccough less. Some slight serous discharge from left ear, and subconjunctival hæmorrhage in left eye.

25th.—Ear discharging serous fluid fairly copiously. Internal strabismus of left eye. No paralysis of limbs.

26th.—Condition much the same. Strabismus more marked. Discharge from ear less. Appetite good. No sickness. Bowels normal.

From this time the child steadily improved. The aural discharge gradually ceased. The strabismus disappeared, and at the end of three weeks could scarcely be noticed. At times, when the child laughed, it was thought that the movements of the left side of the mouth were imperfect, but this became gradually less distinct, and at the end of a month the child was perfectly well, and has continued so without interruption to the present date.

Three points strike me as of especial interest in this case:

1. The main fact of recovery after the loss of a large quantity of blood, recoveries being, so far as I can gather from the scanty mention of the cases in the text-books, not more than 50 per cent.

2. The value of hazeline as a styptic in internal and obscure hæmorrhage. In this case I certainly believe that it contributed greatly to the arrest of the hæmorrhage; and as it is not unpleasant to the taste, and is quite innocuous so far as toxic effects are concerned, it is easily taken by children.

3. The fact of the discharge from the ear, the strabismus, and the partial facial paralysis, seem to point to in-

jury to the base of the skull involving a vessel or vessels, if not actual fracture. This, with even an easy labour, seems to be quite within the bounds of possibility, and, considering the bright colour of the blood, I think it not improbable that the hæmorrhage did not come from the stomach at all, but from the posterior part of the pharynx or the palate, and that some of the blood having been necessarily swallowed, gave rise to the hiccough and occasioned the condition of the stools.

The reason why I am of opinion that this may have been the cause in other cases is the entire absence of cause found on post-mortem examination, with the exception of one case mentioned by West ('Diseases of Children'), in which subsequent hæmorrhage occurred into the arachnoid, causing apoplexy.

So far as I am aware, the cerebral symptoms above described have not been observed in other cases; but, on the other hand, many of them have been so rapidly fatal that there has been no opportunity of judging; and, in the absence of any known cause, it struck me this theory might be worth consideration.

Dr. W. Griffith said that opportunities for investigating the pathology of some forms of hæmorrhage not uncommon in new-born infants were rare. He had some time ago received from Dr. Uhthoff, of Brighton, the generative organs of an eight months female infant, a week old, which had suffered from a vaginal discharge of blood, beginning on the second day, until its death from an independent cause. Blood was found both in the uterus and vagina. The parts had been imperfectly preserved for histological examination, and Dr. Griffith had not been able to determine whether the surface changes in the mucous membrane, which in the new-born fœtus is extremely delicate, were due to decomposition or to a denudation similar to that described as occurring during menstruation. There was no extravasation of blood into the mucous membrane, but just above the cervix on the posterior wall was a minute circumscribed area, having the appearance of an ulcer, but without histological evidence of inflammation.

Dr. Dakin said Mr. Hodges' communication was a valuable addition to our knowledge on the subject of hæmorrhages in the

newly born, as to the causes of which so little was ascertained. He was disposed to agree with the author as to the cause in this case, not only on account of the evidence produced in support of this in the paper, viz. subconjunctival ecchymosis and otorrhœa, but also, and mainly, because the bleeding occurred within six hours of birth. The strabismus and doubtful facial paralysis were very untrustworthy symptoms in such a young child. Hæmorrhages of one kind and another had been numerously recorded as happening to children during the first few weeks of life, and were, in his opinion, expressions of a general condition sometimes existing then, which had been called "hæmophilia neonatorum," but which had really nothing to do with hæmophilia strictly speaking. He alluded to a state of the system in which hæmatemesis, epistaxis, subcutaneous hæmorrhages, bleeding from the vagina or rectum, from the navel, and other places occurred, apparently spontaneously. These seldom or never happened before the fifth or sixth day, so that, although the labour was an easy one, it was likely that the cause in this case was directly traumatic. The large quantity of blood reported to have been lost, however, made it perhaps a little doubtful whether this was a complete explanation of the matter. On account of the date of its occurrence, he demurred to the author's conclusion that the same cause was to be assigned to other cases of hæmatemesis, as in the recorded cases in Dr. Dakin's recollection no bleeding of this kind occurred at so early a period as within the first twenty-four hours of life.

Dr. Boxall said that in the only case of copious vomiting of blood in early infancy which he could call to mind the source of the hæmorrhage was not the stomach nor the infant at all. In the absence of pallor in the child, he was led at once to examine the breast of the mother from which the child had lately been suckled. He then discovered a fissure at the base of the nipple. On attempting to draw the breast through a glass shield, blood was seen to issue freely from the fissure instead of milk from the nipple. This possible source of blood should be borne in mind in similar cases.

Dr. Herbert Spencer believed vomiting of blood from a diseased stomach to be exceedingly rare in the new-born. From the accompanying symptoms he had little doubt that the blood in this case came from a fractured base of the skull. He had several times seen such fractures, causing hæmorrhage beneath the periosteum.

Dr. Routh said it was not to his mind clear that the cause of the hæmorrhage in Dr. Hodges' case was the other injury in the ear. It might be so, but, as had been correctly stated by a previous speaker, the mucous membranes of babies were peculiarly thin and tender, and the hæmorrhage might have been produced by the forcible suction attempted. He instanced a

case of a lady whom he had attended some years back and confined of twins, with similar hæmorrhage from the mucous membrane of the mouth. The twins were premature, scarcely seven months, and she, being a silly, nervous mother, had tried to compel them to suck, with the result of producing hæmorrhage from the mouth. He thought children should be fed, under these circumstances, with raw beef juice or milk, gently squirted into the mouth; the hazeline, he could quite understand, would be clearly a great help, but he had not, unfortunately, employed this agent. He would like to ask Dr. Hodges whether the child in his case was premature, and if any careful examination had been made of the mouth to trace, if possible, the exact source of the hæmorrhage.

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PRINTED BY ADLARD AND SON, BARTHOLOMEW CLOSE.